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FLORIDA Wildlife™

July/August 2010

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2010 art contest winners

TAKACS ©

2010 Art Contest Winning Print

Here is your opportunity to own a copy of this year's *Florida Wildlife* art contest winning artwork. "Great Egrets Courting" by wildlife artist Ed Takacs is being reproduced as a limited-edition print, signed and numbered by the artist. Proceeds go to the Wildlife Foundation of Florida, a not-for-profit, non-political organization dedicated to preserving Florida's fish and wildlife for future generations.

Each print is $60 and may be ordered online at www.wildlifefoundation.net.

2011 Art Contest entry information

Florida Wildlife is pleased to announce its 2011 art contest. Winning entries will be published in the July/August 2011 issue and posted on the magazine's website. Signed and numbered limited-edition prints of the first place winning artwork will be available to *Florida Wildlife* readers. An entry form and a complete list of rules can be found on the magazine's website: www.floridawildlifemagazine.com.

- Contest is open to all artists at least 18 years old, regardless of residency.
- Participants may submit up to three entries.
- All entries must portray fish or wildlife native to Florida.
- Entries must be unframed artwork submitted as a 35mm slide, 4" x 5" transparency or high-resolution digital scan on CD (300 dpi and no smaller than 8.5" x 11")
- Entries must be labeled with artist's name.
- Entries must include a completed and signed entry form, available from www.floridawildlifemagazine.com.
- E-mail entries will not be accepted.
- Entries must be received by Tuesday, March 1, 2011. They will be returned beginning in July. Notification of contest results will be mailed to all participants.

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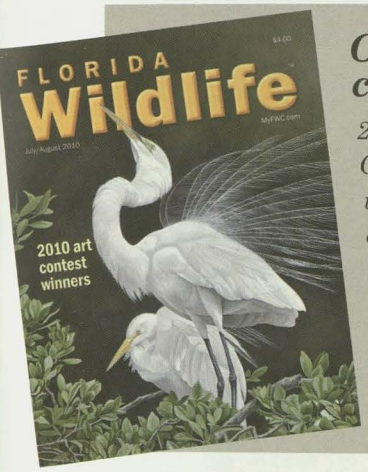
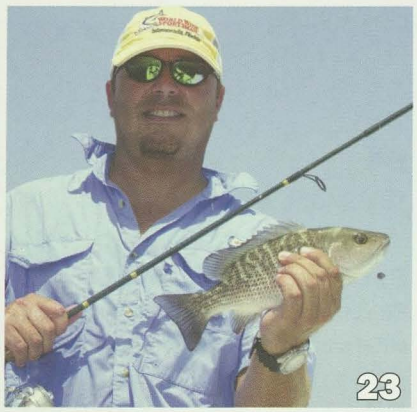


On the cover

2010 Art Contest winning artwork "Great Egrets Preening" by Ed Takacs



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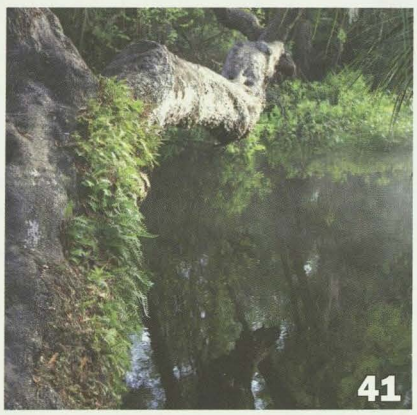

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Volume 63 **FLORIDA Wildlife** Issue 4

CELEBRATING OUR HERITAGE OF HUNTING, FISHING AND NATURE-BASED RECREATION

Published by the Florida Fish and Wildlife Conservation Commission
Our mission: Managing fish and wildlife resources for their long-term well-being and the benefit of people.

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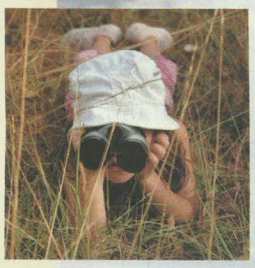
HOW DO WE SAFEGUARD THE FUTURE OF THE GREAT OUTDOORS?



WE CREATE THE NEXT GENERATION THAT CARES.

Today, we are in danger of suffering the greatest loss ever in our efforts to conserve fish and wildlife, natural habitats and traditional outdoor activities—the loss of the next generation that cares.

Our youth are devoting nearly eight hours a day to entertainment media and "media multi-tasking," absorbing up to nearly eleven hours of media content a day. It's no wonder they can recognize more than one thousand corporate logos, but not even ten plants or trees in their own neighborhood.

Can we fix this? Yes! **The Wildlife Foundation of Florida** is spearheading the effort for a groundbreaking new program being introduced by the Florida Fish & Wildlife Conservation Commission. Called **The Florida Youth Conservation Centers Network** (FYCC) it creates a statewide network of youth conservation centers that will encourage and enable participation in traditional outdoor activities.

Introducing the FLORIDA YOUTH CONSERVATION CENTERS NETWORK (FYCC)

There is a lot to be done in order for this project to succeed, and we need your help. Please join our private-public partnership and work with us, because our rich history of conservation will wither and die unless we create the next generation that cares.

Call us today at **800-988-4889** to find out how you can help or visit our website at www.WildlifeFlorida.org. See the complete video story at www.BTYCC.org.

FLORIDA YOUTH CONSERVATION CENTERS NETWORK

WILDLIFE FOUNDATION OF FLORIDA

Established by the Florida Legislature 1994

Florida is like no otherplace on earth. Working together, we can keep it that way.

The FWC responds to the oil spill disaster

Nick Wiley

Executive Director, Florida Fish and Wildlife Conservation Commission

Florida faces an unprecedented time as oil from the Deepwater Horizon BP oil spill comes ashore. Our fish and wildlife are particularly vulnerable as the oil product comes into state waters and onto the shore. Oiled wildlife has become the face of this disaster and has captured the attention of the media. In addition to significant impacts to fish and wildlife, our state also faces very real social and economic impacts that will affect everyone. Given the unprecedented nature and enormity of this disaster, Floridians will be involved in post spill cleanup and recovery efforts for a long time and so will the FWC. We have been preparing for this disaster, and I would like to give you an update on the work that is being done by FWC staff.

Employees have been engaged in efforts to prepare for this oil spill for weeks. They have been conducting biological pre-assessments to determine baseline conditions prior to oil coming ashore and as well as developing operational plans for wildlife, including best management practices to reduce impacts to fish and wildlife during clean-up.

As of June, we had up to 75 FWC vessels, four aircraft (one fixed wing and three helicopters) and 24 ATVs deployed in the Pensacola area, to locate and document the movement of the oil and its impact on wildlife.

FWC staff has been deployed to the state's Emergency Operations Center where the Department of Environmental Protection is the lead agency in Florida for the oil spill response. Agency staff has also been deployed to the Joint Incident Command Centers led by NOAA and the Coast Guard. In both capacities, FWC biologists have been integral in planning and providing expertise knowledge of the impacts upon the fish and wildlife resources in the Gulf of Mexico. They have served as advisors to other agencies to ensure the impacts to wildlife are considered.

Now that oil has come ashore in Florida, wildlife is being impacted. FWC staff has developed Best Management Practices for shorebirds, sea turtles and manatees. Coordination teleconferences with the wildlife leads within the agency for the Natural Resource Damage Assessment process are held approximately twice a week. NRDA is the federally required process used to determine the extent of the injury and the amount and type of restoration required to restore resources to baseline conditions and compensate the public for interim losses.

Some staff have taken the special hazard training required to assist in on-site beach activities, such as handling oiled wildlife; however, that effort is being led by Tri-State Bird Rescue and Research and the U.S. Fish and Wildlife Service. We are in daily contact with Tri-State and the USFWS and coordinating response and monitoring of impacts to Florida's wildlife. Our expert biologists can do the most good as advisors to save as many of Florida's wildlife as possible. Others with experience in handling wildlife, but not necessarily schooled in the biology of animals, will be out on the beaches providing the hands-on rescue and recovery work while staff from the FWC, Tri-State and USFWS direct the operations.

The FWC's scientific staff has some of the very best wildlife experts in the world. They are dedicated and giving their all right now to do whatever they can to achieve the best possible outcome for fish and wildlife in the face of the reality of the devastating effects of oil products in their habitat. I'm proud of all the FWC employees who are stepping up for this massive response. FW

Helpful online sites

For more information about the FWC's response to the spill, visit MyFWC.com/OilSpill.

To view the location of oil product along the coast, visit map.floridadisaster.org/gator.

Additional information about the spill and its impact can be found at www.RestoretheGulf.com.

There are limited volunteer opportunities, but you can find information about the program and register at www.volunteerflorida.org.

Saving Florida's springs one drop at a time

HARLEY MEANS, FLORIDA GEOLOGICAL SURVEY

The Wacissa River near Tallahassee is a spring-fed river that flows 20 miles to the Gulf of Mexico and remains healthy as it winds through swamps and marshes.

By Patricia Behnke

Blind cave crayfish move out of the fissures in the limestone 100 feet underwater. The least killfish, the smallest vertebrate animal in North America, searches for snails among the waving tapegrass, its white flowers blooming just beneath the surface of the water. Eels skim the deepest depths of the cave systems. Apple snails attach themselves to eelgrasses that gracefully pirouette just beneath the surface of the water in the spring runs. And the secretive limpkin feeds on the apple snail protruding from crystal blue water. Alligators and turtles sun themselves on the banks of the rivers filled with the spring water that has emerged from the Floridan aquifer.

This description depicts a healthy functioning spring, spring run and cave system that occurs within the backbone of the northern half of the Florida peninsula. At the bottom of the springs, fissures in the porous limestone create the alleys and passageways leading to large rooms where the water is so clear it seems not to exist at all. This giant limestone sponge is called the Floridan aquifer, which supplies most of North Florida – from Jacksonville to Tampa to Tallahassee – with its drinking water.

But some of these world-famous springs are struggling to breathe under a blanket of algae.

The problem

When the springs show signs of contamination, when the plants narrow down to only a few species of algae, when the unique limpkin leaves because the apple snail no longer exists, then the aquifer and the very water we drink flows in the balance.

"The water coming out of the springs tells the health of the aquifer and the aquifer provides us with our drinking water," said Jim Stevenson, coordinator of the Wakulla and Ichetucknee Springs Basin working groups. "But we've been sloppy housekeepers of the springs, messing them up with wastewater, fertilizer and irrigation practices."

Now retired but still active in protecting Florida's springs, Stevenson worked for Florida's Department of Environmental Protection for 38 years, first as a park ranger and then as chief biologist with the Florida Park Service. As he neared retirement, he was working almost exclusively with the springs. Stevenson recalls what he now refers to as a "watershed" moment more than a decade ago when he led then-Gov. Jeb Bush on a canoe trip down the Ichetucknee.

"Gov. Bush was awed by what he saw. Soon afterward, he formed the Florida Springs Task Force and appointed me chair,"

HARLEY MEANS, FLORIDA GEOLOGICAL SURVEY

While the Ichetucknee River's main spring retains native vegetation vital to the health of the Floridan aquifer (above), algae covers parts of the river's spring run (below).

HARLEY MEANS, FLORIDA GEOLOGICAL SURVEY

Stevenson said. "That trip with the governor showed me the value of officials seeing the resources firsthand."

Kent Smith, a biologist with the Florida Fish and Wildlife Conservation Commission, was appointed to the task force when it was formed in 1999. The task force completed its work several years ago. Now interagency committees are implementing the recommendations of the task force. Smith remains actively involved in those working groups, as an advocate for the species that occur in the springs' habitat.

"Certain species of wildlife are unique to the springs, the spring runs and the cave environments," Smith said. "Endemic species such as the blind cave crayfish and shrimp and other crustaceans are highly dependent on this system."

The wildlife, plants and water are all integrated in these systems and when the springs – pumping 7 billion gallons per day in Florida – become impacted, so does the life within the springs' environment. Experts agree that when the springs' health is jeopardized, the very lifeblood for humans – our water supply – is affected as well.

"If dirty water is coming out of the springs, then we're drinking dirty water," Stevenson said.

And dirty water is coming out of the springs.

It's a two-fold problem, Stevenson warns. Florida's decade-long drought, combined with the withdrawal of water by humans, lowered the volume of water in the springs. Cities, such as Jacksonville, with burgeoning populations, broadened their wellheads out into rural North Florida. The resulting withdrawal means White Springs near Live Oak no longer flows. Impacts from Gainesville, Ocala and Tallahassee wellheads may have already started to lower the flow levels of many other first magnitude springs in Florida.

"This karst region is the backbone of Florida. The springs are in a lower region and the withdrawals from the wells means the water never makes it down to the springs. This issue is most significant to the volume in the springs," said Wes Skiles, a world-renowned underwater explorer and filmmaker. "It's a double-edge sword: A decrease in volume of water increases the concentration of pollutants even if the pollutants are lessened. Both are bad."

The pollutants show up in the form of nitrates, which offer rich nutrients to plants such as algae, which can more readily absorb them and grow at a more accelerated rate than the flowering plants that are necessary to maintain a diverse habitat. Once algae begins to grow, it covers the bottom of the springs and smothers all other plant species, leaving a dark, dense, thick mat and water filled with pollutants.

"It's a double whammy," said Harley Means, a geologist with the Florida Geological Survey with the Florida Department of Environmental Protection. "We're coming off a 10-year drought, and we're continuing to pump out of the aquifer."

Means points to U.S. Geological Survey research that shows statewide from 1991-2003 there has been a trend of a downward flow in the springs.

Fanning Springs, near Chiefland, represents the postcard picture for springs' contamination. The spring, once a first magnitude spring, overflows into the Suwannee River, but it's filled with nitrates and the level of the flow has lessened.

"Fanning Springs is not a first magnitude spring now," Means said. "And the Ichetucknee River's flow is down 15 percent."

The importance of springs

The springs of Florida exist on small patches of land, offering an oasis of natural beauty for residents, tourists, artists, photographers and writers.

"The springs were the first truly magical place I explored as a child," said Skiles. "We first went to Ginnie Springs, and I was totally mesmerized and consumed. I never had any doubt – even at that young age – that I was going to do everything in my power to keep coming back to the springs."

By 1981, Skiles had mapped four of the major cave systems in North Florida. Eventually those maps led to more maps and the realization that everything humans do in the watershed area near the springs directly affects everything in, on, around and under those bubbling pools of water.

"There has been an exponential increase in nitrates directly related to human activities in upland areas in the watershed of the springs," Smith said. "These activities include agriculture, municipal development and associated stormwater runoff, waste dispersal and application of lawn and garden pesticides."

Smith adds that springs such as Fanning Springs represent the visual dichotomy of contaminated spring systems.

"The water is clear; people are still using it and some species are still there, but if you go down the run there are no plants, such as eelgrass, because it's being smothered by the algae," Smith said.

And without the plants, wildlife leaves.

The blind cave crayfish in the springs are like a canary in the coal mine, and they are disappearing, says Stevenson. Another indicator is the limpkin, a rare Florida bird historically always present at the main springs in Florida. In 2002, when a team went out in search of them at 14 main springs, only a few were found.

"We believe this is directly related to the presence of apple snails," Stevenson said. "As ecology changed with more nitrates, the apple snails disappeared and so did the limpkin, which feeds almost solely on the apple snail. In 1954, "Florida Bird Life" listed Wakulla Springs as one of two population centers for the limpkin. By 2000, all the limpkins had disappeared from Wakulla Springs. In less than 50 years, an entire species is gone (from the area)."

The culprits

According to experts, two major contributors to the problems with flow and increased nitrate levels in the springs are Florida's population increases and a decade-long drought.

"More people create a greater problem," Stevenson said. "Everything in Lake City pulls down the flow of the Ichetucknee. Everything in Columbia County, including private domestic wells, creates huge withdrawals from the aquifer. Nassau and Duval counties have impacted White Springs, which no longer flows. The more we withdraw, the more we impact our water supply."

Stevenson points to the springs within the Ocala National Forest to prove this point. The flow at those springs has not been affected and the nitrate levels are under control.

"That's because the watershed area is located within a protected national forest," Stevenson said.

The solution

"Individuals must curb their appetite for water," Skiles said. "The unnecessary uses of water

HARLEY MEANS, FLORIDA GEOLOGICAL SURVEY

FWC FILES

Top to bottom: *Gainer Spring in Bay County is home to many reptiles and amphibians; spring crayfish and spotted sunfish swim in and out of the crevices created in the porous limestone of underground rivers; eels populate the cave system beneath Florida's springs.*

FWC FILES

must be eliminated, and we must resist pointing our fingers at others and instead point the finger to our own backyard.

"Everybody needs to tighten up their belts because the very planet depends upon it."

Skiles suggests individuals can do several things immediately that will help restore the flow and lessen nitrate levels going down into the springs.

"We must begin to let go of the idea of a highly manicured 'sterile' lawn," he said. "Nonnative grasses are no longer sustainable, so let's give out awards for individuals who have native yards and environments."

Keeping native grasses, plants, shrubs and trees in the yard means less watering because native species can adapt to the natural fluctuations of rain patterns. Fertilizers and pesticides are no longer necessity to maintain a pest-free and perfect yard.

Many of Florida's springs lie within rural areas that have become more populated with people in recent decades, and those residences usually depend upon individual septic tanks that can seep nitrates into the watershed.

"I've made a commitment to replace my current septic system with an anaerobic one in the next two years," Skiles said. "This is a dual-treatment septic tank, and there are several kinds available. Basically, it uses bacteria to eat nitrates that can seep into the groundwater."

Stevenson believes that permitting for withdrawing water must slow down until it is clear how much is being withdrawn and how it's impacting the spring flow.

"Individuals must stop treating water as if it's free and limitless," Stevenson said. "We turn on the faucet and let it run; we're watering our lawns; municipalities are watering medians to keep them green. We need to raise the price of water to its true value."

Stevenson urges each household to look into ways to save water, such as installing low-flow toilets, decreasing lawn watering, and lessening expectations for the perfect yard.

The springs working groups in Florida are helping save the resource, which can recover, but as Skiles puts it, it's similar to a teenager with acne.

"When the acne is gone, the scars still remain," he said.

HARLEY MEANS, FLORIDA GEOLOGICAL SURVEY

Algae smothers other plant life in Hart Springs in Gilchrist County.

Work continues at the local level even as populations increase. Smith notes that municipalities are converting to the use of advanced wastewater treatment facilities that remove the nutrients before they go into the watershed.

"Tallahassee is an example of a municipality that is modifying its sprayfield to lessen the nutrients going into the Wakulla Springs watershed," Smith said. "Agriculture has developed best management practices and is using them."

Gainesville is another example of a municipality taking the lead in protecting what goes into the watershed. Gainesville Regional Utilities uses treatment wetlands to significantly reduce nitrate seepage. At the state level, the FWC works with the water management districts, which develop state-mandated minimum flows and levels for springs to help the districts determine their standards for protecting ecosystem functions.

"We are progressing," Smith said. "We're becoming smarter."

If the flow level increases and the nitrate level decreases, the habitat will thrive and the diverse and unique wildlife of Florida's springs will return. And when the crayfish, the turtles and the limpkin find their way back to the water, Floridians can be assured the water they drink is healthy.

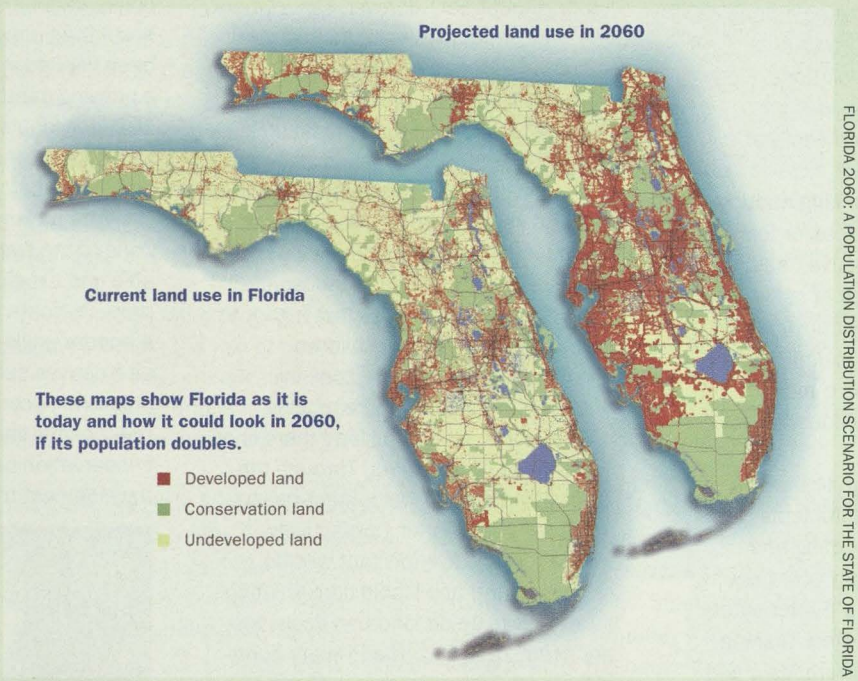
"Florida has the best of the best. I recently went to Texas and visited the springs there. Even though Texas is supposed to have the biggest and best of everything, their springs can't hold a candle to what we have here," Stevenson said. "This is an outstanding resource we almost forgot, but through the dedication of the working groups and agencies such as the FWC and individuals taking an important role in their protections, we may be able to save the springs." FW

Wildlife 2060...
what's at stake for Florida in the next 50 years?

The economic downturn has changed the speed of development in Florida from that of a hare to a tortoise. Nevertheless, like the storybook tortoise, development plods on. And as the hare did, Floridians could learn a lesson from the resolute, slow-moving turtle. Determination also may work to the advantage of Floridians.

The current development lull may be the opportunity to put careful and purposeful thought into creating a plan on how the state is developed, with a better future for Florida's people and wildlife on the winning side of the finish line.

A few years ago, 1000 Friends of Florida released a report that indicated how Florida's landscape would look 50 years from now, based on the trend at that time of booming development and growth. The report predicted that in 50 years, Florida's population would be 36 million residents – double what it is now. About 7 million additional acres of land, equivalent to the state of Vermont, would be converted from rural and natural uses to urban uses. Nearly 3 million acres of agricultural lands and 2.7 million acres of native habitat would be claimed by roads, malls and subdivisions.


Projected land use in 2060
Current land use in Florida
These maps show Florida as it is today and how it could look in 2060, if its population doubles.
Developed land
Conservation land
Undeveloped land
FLORIDA 2060: A POPULATION DISTRIBUTION SCENARIO FOR THE STATE OF FLORIDA

"It was predicted that natural habitats could become islands in a sea of development," said Dr. Thomas Eason, deputy director of the Division of Habitat and Species Conservation for the FWC. "Corridors for some animals to move about the state would be cut off, and there might not be enough land for some species to exist without direct management actions."

According to the predictions made in 2006, the areas where black bears, deer and wild turkeys live could decrease by more than 2 million acres. Gopher tortoises, a threatened species, could lose a fifth of their existing range. Burrowing owls, a species of special concern, could lose an additional 25 percent of their current habitat.

"Fishing, hunting, bird-watching, all kinds of outdoor activities, which brought many of us to Florida in the first place, would be greatly diminished. This affects our quality of life and our economy," Eason said.

Through good and bad times, Floridians have demonstrated a growing concern for the state's wildlife. Because it ultimately benefits people, conservation is a common denominator for many Floridians – even those who do not consider themselves outdoor enthusiasts.

Since 1972, residents in 30 Florida counties voted to tax themselves to preserve important local habitats, raising more than $2 billion to purchase approximately 375,000 acres of conservation lands.

Even now, with a weakened economy, 67 percent of Floridians support continued funding of Florida Forever – a plan that established a state-funded conservation and recreation lands acquisition program.

Due to the determination of so many Floridians, species that were once in jeopardy have rebounded. There are more bald eagles, peregrine falcons, Florida black bears and Florida panthers than there were 50 years ago.

"This is a chance to take advantage of our current situation and make lasting changes in how we develop as a state and interact with our natural world," Eason said.

Prior to the downturn, predictions indicated a grim future for Florida's wildlife, but like the unforeseen foreclosures and bank bailouts, nothing is for certain. Florida has bounced back from past recessions and experienced rapid growth that far exceeded previous expectations. It is Floridians who will determine if, at the end of the road, there will be a continuous expanse of subdivisions spread from coast to coast, or vibrant communities, linked by a green infrastructure that protects open space, farmland and wildlife.

"No matter what is happening with our economy, we must remember to remain diligent and determined in our efforts to conserve fish and wildlife for ourselves, and for future generations. In the end, we'll come out better on the other side if we do what is right for people and our natural resources," Eason said.

Some of Florida's best strategies to give wildlife a chance to thrive include:

- Acquisition and protection of large parcels of conservation lands.
- Promotion of compatible agricultural activity such as cattle ranches and timber operations.
- Development of alternative protection techniques such as conservation easements and tax incentives.
- Ensuring thoughtful, large-scale land-use planning, development design and meaningful mitigation agreements are established.

News & **Notes**

Find hunting and fishing regulations for every state at huntnfishregs.com

Say good-bye to scrounging around websites trying to find up-to-date hunting and fishing regulations. Find interactive regulation guides for all 50 states quickly and easily at huntnfishregs.com.

"We're not only making hunting and fishing regulations easier to find, they will be fully interactive," said Guy VanDyke, vice president of sales for huntnfishregs.com. "Our navigation tools will help you find exactly what you need. Plus, you can e-mail the regulation guides, download PDFs and print them out."

In addition, visitors to the site will find many other useful tools to help them plan their hunting and fishing trips. You can buy your hunting or fishing license, find a hunter safety course and check out maps, fishing reports, weather/lunar forecasts and get contact information for state and federal natural resource agencies.

The founders of huntnfishregs.com, VanDyke and his partner Jeff Hunt, who serves as the organization's vice president of marketing and creative director, each have more than 15 years of experience producing hunting and fishing regulation guides. Plus, they are avid sportsmen who know exactly what it takes to plan a trip afield.

"Our vision is to supply sportsmen and women with all the information they need for legal, successful and safe hunting and fishing trips," VanDyke said.

For more information, visit huntnfishregs.com.

Conservation banking can help save panthers

The U.S. Fish and Wildlife Service and the FWC are pooling resources and expertise to protect Florida panthers and other wildlife. Conservation banking is among the innovative and promising strategies.

Conservation banks for endangered species have been successful in other parts of the country. Banks set up a system where the private sector provides funds to preserve and manage important habitat... forever. Landowners can sell credits to developers planning to impact what are usually marginal habitats elsewhere, ensuring the most valuable habitats continue to flourish.

This system offers landowners an economic incentive to maintain and use the land in ways compatible with conservation. Fittingly, ranchers, who have been stewards of Florida's landscape for generations, can pass that legacy to their children and grandchildren.

The panther Primary Zone in Southwest Florida is where most panthers live, but not all land there is of equal value for panthers. Through the federal and state development-review processes and working proactively with landowners, important wildlife resources and applicable conservation strategies to guide land-use decisions are being identified. The Primary Zone includes 2.27 million acres; about 75 percent is permanently protected. Conserving the remaining high-value areas within the Primary Zone is extremely important, and banks serve a vital role. The Service finalized a conservation bank in the Primary Zone, another is nearly complete, and seven others are under consideration.

The panther Dispersal Zone represents the only natural passageway from the Primary Zone to the Caloosahatchee River and panther habitat farther north. The Dispersal Zone is 28,000 acres – about 1 percent of the size of the Primary Zone. Most of the Dispersal Zone is privately owned and not held for conservation. Recent completion of a panther bank in the Dispersal Zone is an important step in preserving a portion of this valuable area. Three additional banks in the Dispersal Zone are proposed.

The strategic importance of the Dispersal Zone is well known. Male panthers transit this area en route to habitat in South-Central Florida. Last year the FWC documented a female panther in the Dispersal Zone, just south of the Caloosahatchee River, within a mile of the recently finalized conservation bank. This was farther north than any female panther has been verified in decades and indicates a growing panther population – about 100 individuals today – as compared with 62 panthers tallied a decade ago and 20-30 estimated two decades ago.

The proximity of the Dispersal Zone to the river makes the land desirable and expensive. A few years ago, property costs in this location made it appear unlikely that conservation alternatives such as banking were possible. According to the landowners, the recently finalized Dispersal Zone conservation bank was nearly lost to development for that reason.

FWC FILES

The FWC and the USFWS will continue to work with counties, landowners and environmental groups to avoid and minimize impacts to wildlife and their habitats. Conservation banks are one tool – along with land acquisition, habitat restoration, wildlife crossings and advances in science – that will serve a strategic role in this partnership to conserve and recover the majestic Florida panther and many other treasured parts of Florida's rich wildlife heritage.

Ten ways people can protect birds

The American Bird Conservancy has identified 10 things people can do to aid or protect birds in their yards.

1. Keep your cat indoors. This is best for your cat as well as the birds, as indoor cats live an average of three to seven times longer. Even well-fed cats kill birds, and bells on cats don't effectively warn birds of cat strikes.
2. Prevent birds from hitting your windows by using a variety of treatments to the glass on your home.
3. Eliminate pesticides from your yard. Even those pesticides that are not directly toxic to birds can pollute waterways and reduce insects that birds rely on for food.
4. Create backyard habitat. Create a diverse landscape by planting native grasses, flowers and shrubs that attract native birds. You will be rewarded by their beauty and song, and will have fewer insect pests as a result.
5. Donate old birdwatching equipment such as binoculars or spotting scopes to local birdwatching groups. They can get them to schools or biologists in other countries.
6. Reduce your carbon footprint. Use a hand-pushed or electric lawnmower, carpool, use low energy bulbs and Energy Star appliances.
7. Buy organic food and drink shade-grown coffee. Increasing the market for produce grown without the use of pesticides will reduce the use of these hazardous chemicals in the U.S. and overseas. Shade coffee plantations maintain large trees that provide essential habitat for wintering songbirds.

THOMAS J. DUNKERTON

Overall, painted bunting populations have been in decline since 1965, due in part to the highly-colored males being targets of trappers for the caged-bird trade.

8. Keep feeders and bird baths clean to avoid disease and prevent mosquitoes from breeding.
9. Support bird-friendly legislation.
10. Join a bird conservation group to learn more about birds and support important conservation work.

Scientists trick nature, stock Lake Griffin with 200,000 unique largemouth bass

Throughout March, fisheries managers from the FWC released more than 200,000 young Florida largemouth bass into Lake County's Lake Griffin. Scientists at the FWC's Florida Bass Conservation Center in Webster produced the juvenile bass, called fingerlings.

What's different about these fish is that managers raised them using a special technique that produces young bass large enough to be past a critical and vulnerable life stage before their release.

"This larger size should increase their ability to survive and ultimately increase the number of bass available for anglers to catch," said FBCC fisheries biologist Rick Stout.

The FWC plan calls for stocking Lake Griffin for the next two years using the same number of fingerling bass each year. The fish stocked this year could reach 14 inches (the legal minimum size limit for anglers to keep) within two years.

Lake Griffin, located in Leesburg, has long suffered from low survival rates of juvenile bass produced naturally within the lake. This affects the overall bass population there, and FWC researchers hope that the larger, hatchery-reared bass released in the lake will help increase the number of large bass sought by anglers.

What makes this project unique is that this is the first time fisheries managers have stocked such a large number of bass so early in the spring.

"This is the result of coaxing the fish to reproduce in October, which is several months earlier than they would have spawned naturally," Stout said. "The young hatchery-raised bass are approximately 4 inches long when we release them, while most of the native bass have not even hatched yet. That means a significant head start for this crop of fish."

Hatchery personnel did this by controlling water temperature and length of daylight in a series of tanks housing the brood bass. After the small bass hatched, managers reared them on a special diet in indoor tanks called raceways.

"The result is that fishery managers may have another tool to help revive the bass fishery of a lake," Stout said.

Genetics of the bass used in this process is another important component of this stocking project. Scientists genetically tested the hatchery brood fish to ensure that they were pure, Florida-strain largemouth bass.

"Genetic testing also allows us to identify these fish throughout their lives as originating from the hatchery by testing just a small clip from a fin. We no longer need to place a mark or tag on a fish to identify it. This simplifies testing how effective supplemental stocking is and is much less stressful to the fish than marking or tagging," said fishery biologist John Benton. Scientists will be evaluating the success of this program through periodic samples and surveys of anglers.

News & **Notes**

Increasingly threatened loggerheads follow their own paths in travel, eating

With loggerhead sea turtle nests in dramatic decline, researchers want to know more about where the turtles go and what they eat, so they can better protect the creatures' habitat.

Now, a team of University of Florida biologists from the Archie Carr Center for Sea Turtle Research testing that information from the turtles' shells is reporting some surprising findings.

Doctoral student Hannah Vander Zanden conducted analyses of chemical elements in the shells of 15 living female loggerheads, suggesting the turtles are remarkably individualistic in their range, diet or both. The findings are unexpected because loggerheads — named for their large heads — are known to swim thousands of miles and eat 80 types of prey, often including crabs, whelks and many other ocean-bottom-dwelling creatures.

RAY CARSON, UF NEWS BUREAU

UF biology doctoral student Hannah Vander Zanden displays a shell sample gathered from a loggerhead turtle.

"You have this big range of potential things they can eat, and potential places they can go, and it seems that individuals are not using that whole range," Vander Zanden said.

Although the findings need to be refined, the research could one day help scientists and public policy makers find and protect areas of the open ocean or coastal waters where loggerheads congregate or feed heavily. Such protection may be more and more urgent: On March 10, federal agencies proposed upgrading the turtle's status from "threatened" to "endangered" among seven Atlantic and Pacific populations.

Vander Zanden's findings also shed light on the turtles' habits over a span of 12 years, at least three times as long as the longest study involving satellite-tagged turtles — proving the worth of analyzing shells, or similar tissues in other animals, that contain forms of elements known as stable isotopes.

Vander Zanden used a small biopsy punch tool to gather pencil-eraser sized shell samples from adult female turtles while they were nesting at Cape Canaveral National Seashore. Removing the samples, which cut away only the dead tissue of the shell, is harmless and painless to the turtles.

She ground the samples into thin layers and analyzed them using a mass spectrometer, a machine that separates stable isotopes according to charge and mass.

The higher an animal on the food chain, the more heavy stable isotopes it accumulates, the greater the ratio of heavy to light isotopes in its tissue. Different ocean latitudes, meanwhile, have different ratios of light and heavy isotopes, ratios also incorporated into shells or other tissues.

So while the analyses revealed that the turtles were surprisingly different in their individual diet or travels — and maintained these differences over the dozen years of growth reflected in the shell samples — it did not specify discrete food items or locations.

She said she will seek to sort out that question in the remainder of her dissertation research — with luck filling in major gaps about a species once celebrated as healthy but today viewed as in jeopardy. While population numbers for adult members of the species are somewhat mysterious, it is known that nests in the U.S. have declined 41 percent in the past 10 years.

Get your sunshines, FWC tells Lake Osborne anglers

Anglers, take advantage of the opportunity to tap into an untapped Lake Osborne fishery resource.

The supply of sunshine bass, a hybrid striped bass, is high, but demand is low. The FWC is encouraging anglers to get their sunshines.

FWC freshwater fisheries biologists just completed a four-month survey to learn the success rate of Lake Osborne anglers. The results indicate the sunshine bass fishery has the potential for much greater pressure from anglers. During the survey period, biologists found that anglers are only putting in 690 hours of effort to catch sunshine bass. The peak effort occurred 10 years ago, when anglers spent approximately 1,450 hours on Lake Osborne catching sunshine bass. Biologists believe the record-cold winter weather kept anglers out of the water.

The survey found that the success rate for sunshines is much higher than that of other game species on Lake Osborne. Anglers are catching sunshine bass at a rate of approximately four per hour, weighing about 2-3 pounds each. They are catching largemouth bass at just under one per hour, and black crappie at a rate of 1.37 per hour.

To achieve optimum success, anglers should fish in or around schools of bait fish in the open water, and use live bait (shiners or shad). Anglers can also target sunshines in deep holes, using baitfish-imitating lures.

FWC FILES

Sunshine bass are a hybrid, produced by crossing striped bass with white bass.

The FWC annually stocks the Lake Osborne chain of lakes with sunshine bass. As a sport fish, specific bag and size limit regulations apply.

FWC Cessna 'Lizzy Jane' hanging up her wings

For nearly 30 years, the FWC has operated law enforcement aircraft from the Lake City Municipal Airport.

In 1981, the FWC acquired a new Cessna 172 airplane and began making law enforcement flights in support of its officers in the North Central Region. That same airplane is about to be retired from the FWC.

Pilot Joe Johnston, who has flown the airplane since 1987, said he knew the day would eventually arrive, but is sad to see the airplane go.

Johnston affectionately named the plane "Lizzy Jane," after his daughter. He said the plane seemed like family after all these years. The pilot recalled when his daughter was about 18 months old; he snapped a photo of her sitting on the wing of the Cessna.

"Now she's 22 and a mom herself," Johnston said.

The plane has served Florida residents well.

"I've spent nearly 7,000 hours flying Lizzy Jane all over the state, days and nights and in all kinds of weather," Johnston said.

Johnston estimates that his law enforcement flights produced more than 1,000 arrests, citations and warnings. These include arrests for illegal deer possession, night hunting, environmental crimes, trespass, boating and fishing law violations, drug and illegal alcohol possession, the capture of fugitives and DUIs.

Pilot Joe Johnston stands next to the "Lizzy Jane" before she is retired from service with the FWC.

KAREN PARKER

"She's been a productive aircraft and will be missed," Johnston said. "She's helped us through hurricanes, tornadoes, floods and fires."

The FWC will continue to support its officers with the Bell LongRanger helicopter flown by Johnston and will possibly replace the Cessna with another aircraft in the future.

"They may give me a newer, sleeker model, but there's only one Lizzy Jane, and she can't be replaced," Johnston said.

Scientists fish for facts about wading birds foraging in the Everglades

The South Florida Water Management District Governing Board recently approved continuing support for a unique study that is helping scientists protect and restore wading bird colonies in the Everglades. The ongoing study is being conducted by biologists at Florida Atlantic University.

"Wading birds are the iconic image of the Everglades, and they tell us a great deal about the overall health of the ecosystem," said SFWMD Governing Board Chairman Eric Buermann. "This study will help provide the science necessary to make sound ecosystem management and restoration decisions as we move forward."

The Governing Board's investment of $978,500 allows the study to continue for another five years and helps the District meet an objective of the Comprehensive Everglades Restoration Plan, which calls for restoring nesting colonies of wading birds in the Everglades.

Conducted by the university's Dr. Dale Gawlik, the goal of the study is to gain an understanding of how dry season hydrologic patterns across the landscape affect fish concentrations and corresponding bird foraging. By determining optimal water depth to increase the availability of fish, water managers may be able to make operational changes to water levels that better support and increase the success of wading bird populations, while continuing to meet water supply, flood control and other environmental needs.

The study involves sampling fish and invertebrates throughout freshwater marshes located within Everglades National Park boundaries, the eastern portion of the Big Cypress National Preserve, the littoral zone of Lake Okeechobee, the Pal-Mar and J.W. Corbett Wildlife Management Area and the Water Conservation Areas.

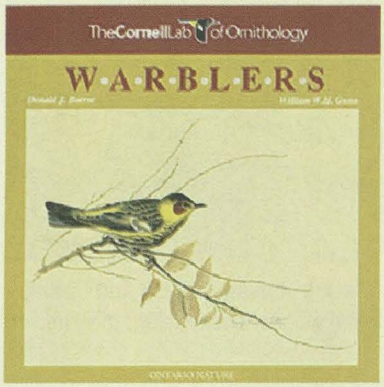
Green herons usually forage from branches above water or from the water's edge.

THOMAS J. DUNKERTON

The Comprehensive Everglades Restoration Plan is a framework for restoring, protecting and preserving the water resources of central and southern Florida. CERP is a 50-50 partnership between the state of Florida and the federal government. The state of Florida and the South Florida Water Management District have invested approximately $2.4 billion toward this effort, including approximately $600 million in construction. Through Dec. 31, 2009, 60 percent – or approximately 233,277 acres – of the estimated lands needed to implement CERP have been acquired.

News & **Notes**

Carry a tune with digital warbler songs



CORNELL LAB OF ORNITHOLOGY'S MACAULAY LIBRARY

A compilation of 310 songs and calls for 57 species of warblers is now available from the Cornell Lab of Ornithology's Macaulay Library – the largest archive of wildlife sounds in the world. Originally released in 1985 as an LP record, *Songs of the Warblers of North America* is the most comprehensive audio guide to warblers available anywhere. The newly digitized version can be used on any device that plays MP3 files and is $14.99 at www.macaulaylibrary.org.

Multiple sounds for each species showcase the variability in warbler vocalizations, enabling listeners to recognize the essential qualities of each species' song while also appreciating the variability within and among species. Selected examples are available for listening at www.macaulaylibrary.org.

The MP3 files are accompanied by photos of each warbler for those who download the material to a device that can show images. A PDF copy of the booklet that accompanied the original album provides information on the location and date for each recording and is included in the download. This guide to warbler songs and calls is a collaboration of the Cornell Lab of Ornithology, the Borror Laboratory of Bioacoustics, and Ontario Nature.

All kidding aside, this monkey business is serious

The elusive rhesus macaque monkey darting around the Tampa Bay area and cheered on by thousands of Facebook fans is generating a lot of banter. However, wildlife officials caution that this monkey is highly stressed and potentially very dangerous, and is itself in danger.

According to the FWC, rhesus macaques are bad-tempered, powerful monkeys that, if cornered, can injure or even kill an adult human. Of particular concern to wildlife officials is that some area residents are not taking these warnings seriously and are tempting fate by trying to feed or catch this animal with their hands.

The Centers for Disease Control reports that roughly 80 percent of rhesus macaques carry the simian herpes-B virus. If the animal bites, scratches or even spits on you (one of many bad habits this species exhibits), you may become infected. If infected with this virus, there's an 80 percent chance you will die from an untreated wound. Even a treated wound can be fatal.

FREEDIGITALPHOTOS.NET

Feeding wildlife is the primary factor causing wildlife to destroy property and attack pets and humans. Monkeys are no exception.

"Although this marauding monkey makes for humorous reading, people should not lose sight of what's best for the animal and for public safety," said Dr. David Murphy, staff veterinarian at Tampa's Lowry Park Zoo.

"Encouraging this animal to approach or remain close to humans for any reason can lead to a defensive attack if the animal feels trapped or otherwise threatened by miscued human body language," said Capt. John West, who deals with captive wildlife issues for the FWC's Division of Law Enforcement.

Also in doubt is the monkey's ability to continue to live on its own in a hostile, urban environment. Rhesus macaques have a highly evolved society where the health and well-being of each individual is largely dependent on the cooperation of other troop members, especially for defense purposes. A lone rhesus macaque stands little chance for long-term survival outside its troop. Predation on a lone macaque by urban coyotes, bobcats or neighborhood dogs is a distinct possibility. Other factors such as high-volume traffic, high-voltage power lines and other urban hazards add to the mix of threats to the creature.

Monkeys in any situation are difficult to capture, even for the most experienced experts, and the challenge is magnified in a highly stressful urban setting. So far, this animal has managed to avoid capture through sheer athleticism, sharp eyesight, an apparently intuitive understanding of the dangers of crossing the street and a lot of luck. Such luck, however, is not likely to continue indefinitely.

"We understand the need for comic relief, as well as the compassion people feel for this engaging creature. Those things, however, are not of primary concern to our agency. Rather, it's how people act upon those feelings that can cause serious consequences to those in direct contact with the monkey," said Gary Morse, spokesman for the FWC. "This animal's only real chance for survival is to be caught and then cared for by an accredited facility, where it can interact with other members of its own kind."

The FWC urges those who see this monkey not to feed, try to capture or interact with it in any way. If you spot this animal, return to the safety of a building or your vehicle and immediately call the FWC's Wildlife Alert Hotline at 888-404-3922, and leave the monkey business to the FWC.

Loxahatchee National Wildlife Refuge receives stimulus funding to remove invasive species, restore natural habitats

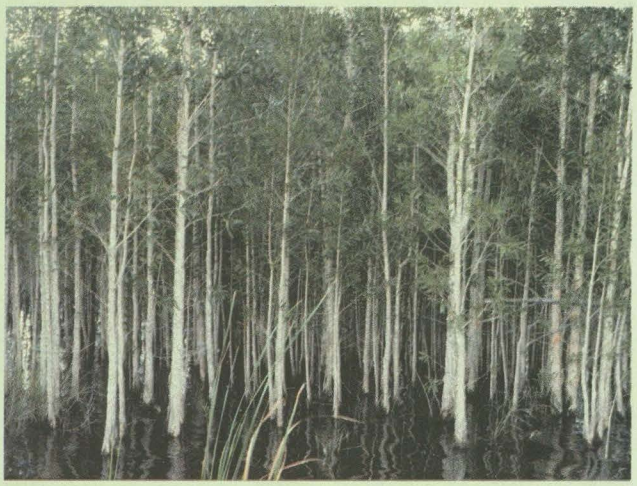
The U.S. Fish and Wildlife Service was awarded a $1.25 million contract for removal of invasive plants at the Arthur R. Marshall Loxahatchee National Wildlife Refuge under the American Recovery and Reinvestment Act.

The ARRA contract, awarded to Aquatic Vegetation Control of West Palm Beach will be used to remove from about 9,000 acres of the refuge, invasive plant species including melaleuca, Old World climbing fern, Brazilian pepper and Australian pine.

Melaleuca is the primary target of the removal project, said Lisa Jameson, invasive species biologist at Loxahatchee. "It's a persistent weed," she said. "It will out-compete the native vegetation which provides food and habitat for our wildlife on the refuge."

Aquatic Vegetation Control, which has worked with the USFWS on similar projects, will use a variety of techniques to control Melaleuca and other non-native vegetation, including hand-cutting individual trees through the bark and applying pesticide, and hand-pulling saplings. Other techniques the USFWS uses to control non-native vegetation are aerial spraying, prescribed burns and biological controls.

With more than 221 square miles of Everglades habitat, the Arthur R. Marshall Loxahatchee Refuge is home to the critically endangered Everglade snail kite. The refuge is located about 10 miles west of Boynton Beach.



FWC FILES

Melaleuca is the most serious threat to South Florida because it invades wetlands and surrounding areas, crowding out all other species as it spreads.

Anglers help biologists make big strides in tarpon research

Biologists with the FWC's Fish and Wildlife Research Institute and Mote Marine Laboratory continue to gather valuable tarpon information with the help of Florida anglers. By analyzing DNA samples collected by anglers, biologists gain insight into tarpon movement and distribution as well as their ability to withstand fishing pressures.

FWC FILES

An angler takes a DNA scrape from the outer jaw of a tarpon.

Biologists use samples submitted to the Tarpon Genetic Recapture Program to identify the tarpon's genetic "fingerprint." The fingerprints provide a unique and natural tag for each individual fish. Scientists compare new tarpon DNA samples with cataloged samples to determine if someone caught and sampled that tarpon previously. Biologists refer to these fish as "recaptured" tarpon.

Biologists have documented 37 recaptured tarpon since 2005. Information from these fish provides valuable insight on tarpon movement. For example, one recaptured adult tarpon traveled 88 miles in 313 days, heading north from the waters off Fort Myers Beach to Long Boat Key. A different tarpon made a similar movement in the opposite direction, confirming that tarpon move between estuaries along the west coast. Another fish, caught in June 2007 in Boca Grande, was captured in the same location nearly two years later. This demonstrates that a tarpon will return to the same body of water during the spawning season.

Angler involvement has increased significantly since the program began in 2005. In the past 12 months, anglers provided more than 2,000 samples, bringing the total number of samples to just over 5,200. Anglers throughout Florida submitted samples from tarpon ranging in length from 5 to 96 inches.

Anglers who would like to participate in this program may obtain a free, easy-to-use tarpon DNA sampling kit by e-mailing TarponGenetics@MyFWC.com or by calling 800-367-4461.

Participating anglers receive an annual newsletter with updates on the program from biologists. As it becomes available, anglers also will receive additional information about specific fish they caught, such as when the tarpon is captured again or if it has been captured previously. Anglers who submit a tarpon DNA sample to this program are entered into random drawings for various prizes.

For more information on the Tarpon Genetic Recapture Study, visit research.MyFWC.com/tarpon.

News & **Notes**

Catching spawning Florida bass won't deplete populations, UF study shows

In Florida, the bass usually begin spawning in January or February but this year they started at least a month late because of prolonged cold weather, said Mike Allen, a fisheries professor with UF's Institute of Food and Agricultural Sciences.

Largemouths are the state's most popular freshwater game fish. To spawn, male bass make shallow nests in the sand, court females, and then protect the eggs and hatchlings for several weeks.

Males guarding nests are notoriously aggressive, striking anything that moves. The fish are easy to catch, but it's commonly believed that spawning-season fishing reduces bass populations. Allen's latest study suggests that notion is rarely true.

TYLER JONES, UF/IFAS

Fisheries ecologist Mike Allen (right) talks to UF graduate student Bobby Harris, about to enter the water in search of nesting bass. Allen recently published a study showing bass populations seldom benefit when lakes are closed to fishing during spawning season.

"We found that in most cases, spawning area closures won't improve bass populations, for a couple of reasons," he said. "One is, there's a lot of catch-and-release nowadays. The other is, if you lose some nests, the ones that are left have higher survival rates."

Catch-and-release is the practice of setting fish free, rather than keeping or "harvesting" them. In 2008, Allen and colleagues published a study showing that the percentage of largemouth bass harvested by anglers had fallen by half since the 1980s.

When nesting male bass are harvested — or if they're released after a long delay — their nests are likely to be invaded by predators such as bluegill, which gobble up eggs and hatchlings.

However, the young bass that survive face less competition for food and shelter, giving them a better chance at reaching adulthood, Allen said.

"This research shows that protecting fish just to let them spawn won't improve sustainability," Allen said. "If overfishing happens, we will need a larger closing to reduce annual fishing-related mortality — closing over a longer time or a larger area."

Stimulus funds help Florida scrub-jays at Merritt Island Refuge

Even a national wildlife refuge has to work hard to keep its habitat the way the Florida scrub-jay needs it: low oak scrub, with no tall trees where predators like hawks can hide. So the U.S. Fish and Wildlife Service will spend $905,000 in American Recovery and Reinvestment Act funds – popularly known as stimulus funds – for habitat improvements at Merritt Island that will help the scrub-jay survive and thrive.

"We have one of the largest populations of Florida-scrub jays in the state, but our birds are suffering from habitat loss from past fire suppression activities," said Dorn Whitmore, supervisory park ranger at Merritt Island. "The Florida scrub-jay is our priority species at the refuge. It requires an open landscape with few tall trees and numerous sandy openings. With this project, we are attempting to restore about 15,000 acres of critical scrub jay habitat."

Habitat Restoration Resources Inc., a small business in Cape Coral, has been awarded an $800,000 stimulus fund project to remove tall trees in sections of the refuge. That contract also means employment for workers.

"This contract is huge for us," said Laurel Egan, majority owner of Habitat Restoration. "The economic downturn has hit us like it has everyone, and we feel very fortunate to continue to be able to pay our employees and pay their health insurance. Getting this stimulus contract allowed us to not downsize."

A second stimulus contract of $105,000 was awarded by the USFWS to Summit Helicopters for aerial spraying of invasive species in the scrub-jay habitat area.

THOMAS J. DUNKERTON

A third stimulus contract for Merritt Island was awarded to Barlovento LLC for $633,000 to design and construct a new staff building at the refuge. Currently about eight refuge staffers, including biologists and law enforcement agents, work out of a trailer.

Consisting of 140,000 acres, Merritt Island National Wildlife Refuge provides a wide variety of habitats: coastal dunes, saltwater estuaries and marshes, freshwater impoundments, scrub, pine flatwoods, and hardwood hammocks, with more than 1,500 species of plants and animals. Recreational opportunities include bird and wildlife observation, a wildlife drive, manatee observation deck, fishing, hunting and boating.

Extent of cold impact on Florida Keys corals studied

The influx of cold water from Florida and Biscayne bays appears to be responsible for January's coral deaths in nearshore waters of the Florida Keys National Marine Sanctuary, according to an assessment by reef biologists. Fortunately, offshore reefs most frequented by divers and sportfishers were buffered by the warmer waters of the Florida Current and spared severe impact.

Thirty-one scientists representing 13 organizations surveyed 78 sites throughout the Florida reef tract from Martin County south through the lower Florida Keys, assessing coral health in the wake of record low temperatures. Their surveys revealed that the inshore and mid-channel reefs from Biscayne Bay to Summerland Key were the hardest hit.

During the first two weeks of January, water temperatures in parts of the Keys dropped into the upper 40s and lower 50s — about 20 degrees lower than the typical temperatures of the upper 60s and lower 70s. The lethal lower limit for corals is 60 degrees.

A widespread cold-water coral die-off hasn't occurred in Florida since the late 1970s.

While all coral species were affected, the impact of the cold water was very distinct from location to location.

"Corals within 100 meters of each other experienced 10- to 15-degree temperature differences," said The Nature Conservancy's James Byrne, marine science program manager.

The Florida Keys sit at the intersection of the warm tropical waters of the Caribbean and the cooler temperate waters of the Gulf of Mexico and the Atlantic Ocean. Water normally changes tidally between the two through channels between the islands. In January, those channels brought in cooler water from Florida and Biscayne bays, resulting in more dramatic temperature drops and subsequent coral death.

One critical area researchers are still studying is whether this cold stress event will make corals more susceptible to disease. Research by Dr. Kim Ritchie, manager of Mote Marine Laboratory's Coral Microbiology Program, has shown that some bacteria living symbiotically with corals help protect corals from disease. Following warm-water bleaching, corals' bacterial makeup changes, leaving coral susceptible to disease.

"This cold event allows us to study coral response and recovery to a type of stress that is the opposite of the warming events we've been studying for the past three decades," Ritchie said. "In this case, we'll be documenting the balance of coral pathogens versus beneficial microbes during the recovery and be able to compare and contrast them for cold and warm events."

Divers in the Florida Keys are encouraged to report the location of observed coral bleaching to Mote's BleachWatch program at www.mote.org/bleachwatch. Divers should also be aware that bleached corals are extremely vulnerable to additional stress. Divers are encouraged to pay careful attention not to touch corals.

JEN MORRISON/FWRI

Coral before and after the cold-water die-off.

Don't be left holding the boat

The FWC has partnered with Volusia County's tag and title offices to help save taxpayers money and reduce the number of abandoned vessels cluttering the county's waterways. The pilot program aims to educate boat owners and potential boat owners about titling responsibilities when they buy or sell a boat.

"We've created a simple card called, 'Don't Be Left Holding the Boat,' which explains why it's important for the boat's title to be in the current owner's name," said Capt. Chris Roszkowiak, an area law enforcement supervisor for the FWC.

"Volusia's tag and title offices have agreed to include one of these informational cards with every vessel registration renewal."

The FWC hopes vessel owners will read it and then attach it to their vessel documentation, so when they sell the boat, they remember to transfer the title to the new owner.

What does all this have to do with abandoned and derelict vessels?

"When you sell or otherwise get rid of your boat, unless you transfer the title and notify the state Department of Highway Safety and Motor Vehicles, legally you still are considered the owner of the vessel," said Roszkowiak. "That means if the boat later is found abandoned, sunk or derelict, the person whose name is on the title is responsible financially for removing it."

If officials cannot find the rightful owners of abandoned vessels, the cost to remove them falls on local and state governments, which means taxpayers.

Anyone with information about improper disposal of a vessel should call the FWC's Wildlife Alert Hotline at 888-404-3922. Callers may remain anonymous and may be eligible for a reward if their information leads to an arrest. The hotline is open 24 hours a day.

News & **Notes**

FWC launches climate change website

Find out what fish and wildlife managers are doing to help wildlife adapt to potential climate change impacts. Measure your carbon footprint. Tap into age-appropriate climate change lessons. These exciting features and more can be found on the FWC's new website, MyFWC.com/ClimateChange. The website is dedicated to educating the public about the impacts of climate change to the state's fish and wildlife resources and how the agency is addressing those impacts.

"We hope the FWC climate change website will become a must-visit resource for individuals and organizations wanting to learn more about climate change and its impact on wildlife," said Doug Parsons, the FWC's climate change program coordinator. "The FWC has established itself as a leader nationally on this issue, and we look forward to working with our wildlife partners to improve the information on the website as this issue unfolds in the years to come."

Florida's geography and location as home to threatened and endangered wildlife puts the state in a unique position for experiencing the effects of climate change. Acknowledging that fact, the FWC began addressing climate change in 2007, when the commission passed a resolution directing staff to develop recommendations for conserving fish and wildlife in the face of climate change. In 2008, the FWC hosted a climate change summit, which brought together leading experts and professionals in the field to share their knowledge. Immediately following the summit, the FWC formed climate change teams. The website confirms the FWC's commitment to addressing this complex issue.

FWC reports encouraging news about Florida panthers

As spring bloomed, some positive signs emerged about Florida's endangered panther. Biologists with the FWC and Big Cypress National Preserve were busy documenting active Florida panther dens filled with kittens.

A total of four dens, with three kittens apiece, have been documented so far in 2010. These particular dens were found in palmetto thickets in Picayune Strand State Forest and BCNP in Collier County. The births are significant because they offset panther deaths and hopefully mean the population will continue to grow. The panthers' numbers declined to approximately 30 cats by the early 1980s, but research and monitoring by FWC biologists have helped in restoring the genetic health and vigor of the panther population.

Florida panthers breed throughout the year, but peak activity occurs in the spring. Biologists attempt to visit the dens when the kittens are approximately 2 weeks old. At that time, litter size and composition are noted, samples (skin, hair, blood, fecal) are taken for genetic testing and health screening, and transponders are inserted for identification purposes. This information helps biologists learn about the genetic structure of the population. Also oral deworming medication is administered to help give the kittens a healthy start.

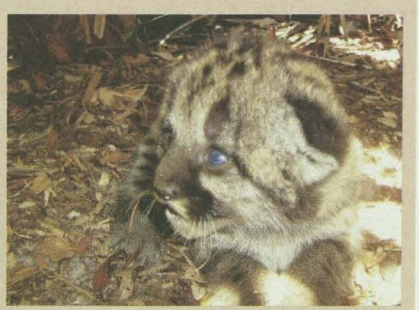
The kittens stay in the den for about two months, after which they begin following their mother to kills and begin the weaning process. Kittens stay with their mother for about 14 months. Females set up a home range near or overlapping their mother's home range. Males disperse away from their natal range, sometimes covering hundreds of miles before settling into their own home range.

"It's quite rewarding when we can follow Florida panthers throughout their lives," said FWC panther biologist Mark Lotz. "Active dens are tangible evidence that the Florida panther is reproducing. We learn so much about panthers when we track them from birth through adulthood."

Details on this year's births can be found at www.FloridaPantherNet.org; click on "Panther Pulse."

State funding for panther research and monitoring comes from fees collected when Florida residents purchase panther specialty license plates. Visit www.buyaplate.com for more information.

To report dead or injured panthers, call the Wildlife Alert Hotline at 888-404-3922.



FWC FILES

FWC FILES

Above: *After its medical workup, this panther kitten was returned to its den.* ***Below:*** *The spotted fur of panther kittens helps camouflage them in the dappled sunlight of the den.*

Major boating grants awarded to nine states

FILE PHOTO

Secretary of the Interior Ken Salazar has announced the award of more than $12 million in competitive grants to 10 states ranging from Oregon to Florida for 13 boating infrastructure projects. The grants, which will help fund construction of docks, boat slips and other facilities to support recreational boating, are made available through the U.S. Fish and Wildlife Service's Boating Infrastructure Grant program.

"The Boating Infrastructure Grant program is one of the many ways we support access and provide quality outdoor opportunities for the nation's recreational anglers and boaters," said Secretary Salazar. "These grants also support major construction projects, creating jobs and providing much-needed economic benefits."

Funding for the BIG program comes from the Sport Fishing and Boating Trust Fund, formerly known as the Aquatic Resources Trust Fund, which is supported by excise taxes on certain fishing and boating equipment and boat fuels. The Service will also release more than $2.9 million to 31 states, commonwealths and territories willing to match a smaller, non-competitive grant program known as BIG Tier One funding.

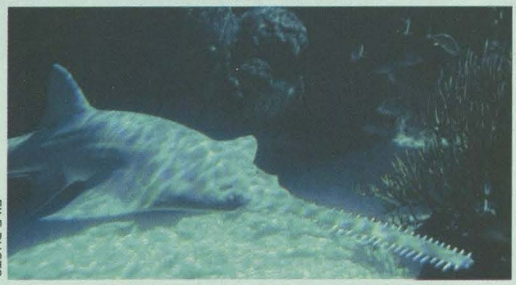
Boating Infrastructure Grant funds are used to construct, renovate and maintain tie-up facilities with features for transient boats (those staying 10 days or less) that are 26 feet or more in length and used for recreation. The funds are also used to produce and distribute information and educational materials about the program and recreational boating.

The FWC, in cooperation with the Rybovich Marina, will receive $1,247,705 and match that same amount to replace a bulkhead seawall and construct a floating dock with 2,948 feet of dockage for up to 112 transient nontrailerable vessels at the Rybovich Marina in West Palm Beach.

The FWC, in cooperation with the city of Riviera Beach, will receive $1,780,823 and match that amount with $1,800,825 to provide the first dedicated transient overnight dockage and day dockage for up to 42 transient vessels 26 feet in length or longer at the Riviera Beach Municipal Marina in Riviera Beach.

FSU marine ecologist wins grant to study endangered sawfish

A scientist at The Florida State University Coastal and Marine Laboratory has won a three-year, $674,989 grant to study the endangered but little-known sawfish, whose numbers are believed to have declined globally more than 90 percent.



FILE PHOTO

The formidable-looking sawfish is related to the stingray but resembles a shark.

The sawfish has been overexploited in many parts of the world due to the commercial appeal of its prominent, toothy rostrum (snout). It also has an unlucky affinity for heavily fished tropical waters and ecologically threatened shorelines.

Marine ecologist Dean Grubbs and his Florida State team will focus their research on the ecology of the smalltooth sawfish, the only domestic marine fish currently listed in the U.S. Endangered Species Act but, until now, rarely investigated. Its once-extensive range in the United States now is primarily restricted to Southwest Florida and the Florida Keys.

"Worldwide, there are only six or seven extant species of sawfishes and all are listed as Critically Endangered on the IUCN (International Union for Conservation of Nature) Red List of Threatened Species," Grubbs said. "This means we are in danger of losing an entire order of animals that are among the largest of all fishes, including some sawfish species that reach lengths of more than 20 feet."

Grubbs said populations have declined due to overfishing and habitat loss.

"We could view sawfish as a marine analogy to rhinoceros and elephants," he said. Like the elephant for its tusks or the rhino for its horns, sawfishes have been overfished worldwide primarily for their toothed rostrum, the saw. Sawfish rostra are purchased whole as curios or even powdered for medicinal use and can bring several thousand dollars.

"Their 'saw' also makes these fishes highly susceptible to bycatch in many fishing gears," Grubbs said. "In addition, they depend on habitats such as mangrove-fringed shorelines that are highly sensitive to degradation from pollution and development.

"Sawfish are important upper-level predators in subtropical coastal habitats, and our ability to facilitate their recovery will be an indicator of our ability to promote and maintain healthy coastal ecosystems."

Grubbs noted that the current recovery plan for smalltooth sawfish is hindered by the general lack of information on their life history and ecology. Largely unknown is even basic information concerning seasonal residency, migration patterns and habitat affinities.

The nearly $700,000 grant to Florida State is part of $2.4 million in funding that has been awarded to the FWC from NOAA's Protected Species Cooperative Conservation Grants Program. Grubbs will work with the FWC as a co-investigator on the sawfish study, as will researchers from UF and the Texas Parks and Wildlife Department.

The Florida State University Coastal and Marine Laboratory is located on St. George Bay in St. Teresa, about 45 miles southwest of Tallahassee. Learn more at www.marinelab.fsu.edu.

News & **Notes**

Funding in place for marine enhancement center

A $900,000 project to convert a former Volusia County high school to the Mosquito Lagoon Marine Enhancement Center is good to go. Funding is in place to begin construction this summer.

The Wildlife Foundation of Florida spearheaded organizing public and private partners, including approaching the Volusia County Council to chip in a $600,000 grant from the county's Environmental, Cultural, Historic and Outdoors Grants funds.

New Smyrna Beach kicked in another $130,000 on top of $150,000 from the wildlife foundation. Local organizations – Artists Workshop Inc. and Marine Discovery Center Inc. – generated $10,000 each.

"This facility is going to be a great asset in Volusia County," said Brett Boston, the wildlife foundation's executive director. "It marks a significant return on the investment the county's residents made by allowing a new tax on themselves to pay for projects like this one. That reflects the county's vision that Florida is like no other place on earth, and we must all work together to keep it that way."

The project is the first phase of a 10-year plan that will begin with demolition of unusable buildings and renovation of others on the campus of the former New Smyrna Beach High School.

The Artists Workshop and the Marine Discovery Center will lease one of the buildings and provide marine environmental and cultural learning experiences, and outdoor recreation activities for local residents and visitors. Another building will house FWC officers and biologists.

"Eventually, the project will include birding trails along the shoreline, an observation tower and kayak trails in the lagoon," Boston said.

Once completed, the facility will include a hatchery for redfish and sea trout and propagation of reef fish for stocking local waters.

Panthers in Picayune kicking up their heels

A rare photograph taken in March of a Florida panther and her two kittens is making the e-mail rounds among wildlife biologists and conservation partners who have toiled for decades to restore the big cat's habitat.

The photo, taken from an airplane above Picayune Strand near Naples, captures the trailing kitten mid-leap, as if euphorically kicking up her heels in delight.

For those who have witnessed the shrinking of the panther's historic range – now down to 5 percent of its original size – the snapshot is as sweet as January's high-profile visit from Washington VIPs for a groundbreaking ceremony at the Strand. It's proof positive that restoring this part of the Everglades is good for Florida's iconic animal.

Picayune Strand, a 55,000-acre chunk of the Everglades, was drained and partially developed decades ago to build a subdivision. The development failed, and over the years the state and federal governments spent $150 million to purchase the land lot by lot. State and federal biologists consider the Picayune Strand an essential piece of remaining panther habitat, connecting other public lands that include the Florida Panther National Wildlife Refuge, Everglades National Park and Fakahatchee Strand Preserve State Park. In the early 1990s, the Florida panther was on the brink of extinction. Now, the population in the wild is still less than 100, according to the latest estimates from the U.S. Fish and Wildlife Service.

In recent months, the Picayune Strand Restoration Project gained momentum with the start of a $53 million U.S. Army Corps of Engineers project to build the first of three pump stations to deliver water back to the landscape. Assistant Secretary for Fish, Wildlife and Parks Tom Strickland and the late USFWS Director Sam Hamilton attended the Jan. 6 groundbreaking ceremony.

After three decades of working to protect Florida's natural resources, including panther conservation, USFWS wildlife biologist Kim Dryden said "It's truly exciting to take this step towards panther recovery."

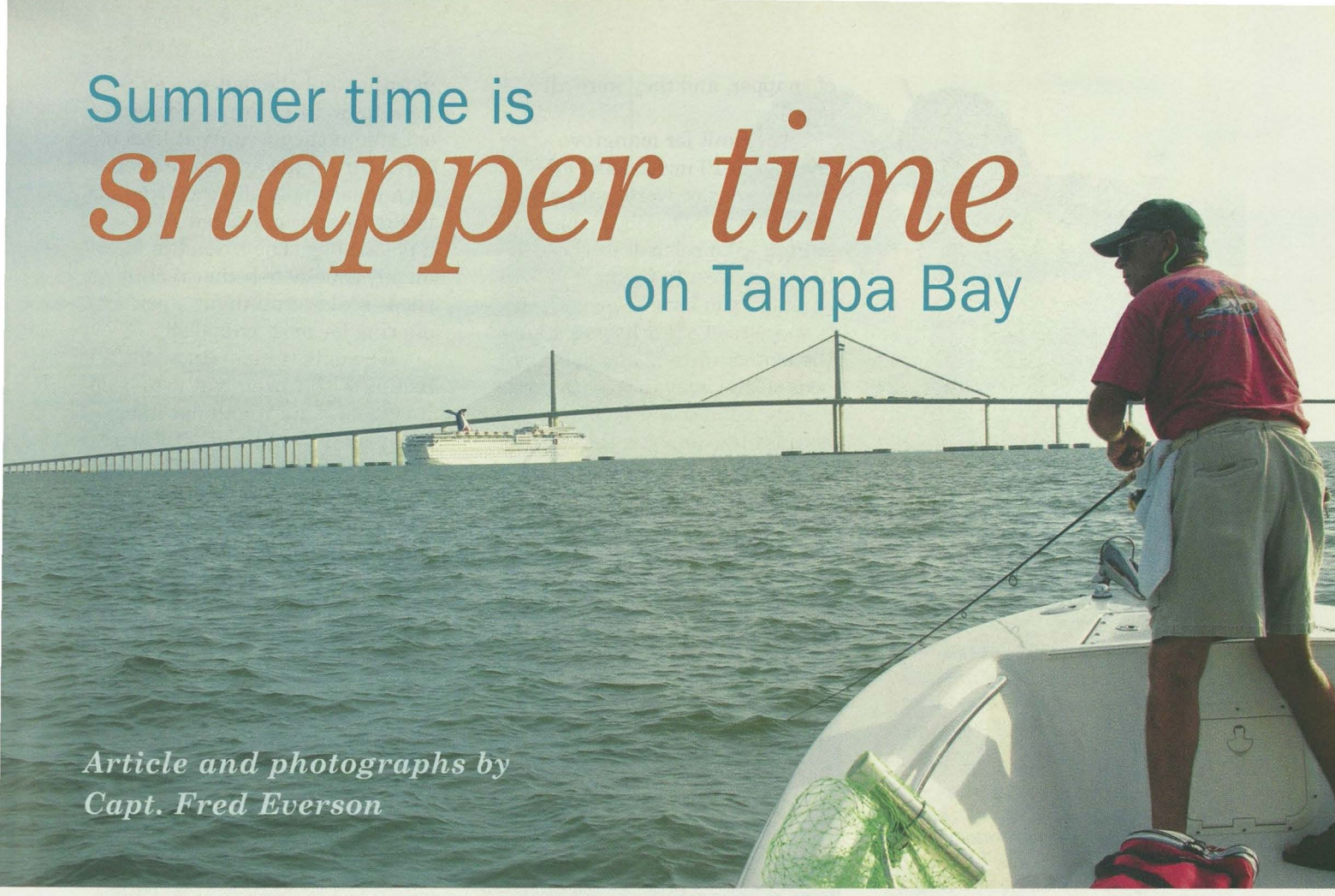
In addition to rehydrating the wetlands, the Corps and the South Florida Water Management District are also removing 260 miles of roads. In the photo, taken by Panther Team leader Darrell Land as part of an FWC monitoring program, Panther #170 and her kittens are walking on one of the roads where asphalt has been removed.

As Janet Starnes, project manager for the water district told her colleagues, the panther photo "makes us smile and want to go to work the next day to finish the project."

Panther #170 and kittens walking in the northeastern portion on Picayune Strand Restoration Project on March 1.

DARRELL LAND, FWC PANTHER TEAM LEADER

Summer time is *snapper time* on Tampa Bay



Article and photographs by Capt. Fred Everson

A good place to look for snapper is over hard bottom around the Sunshine Skyway Bridge over Tampa Bay.

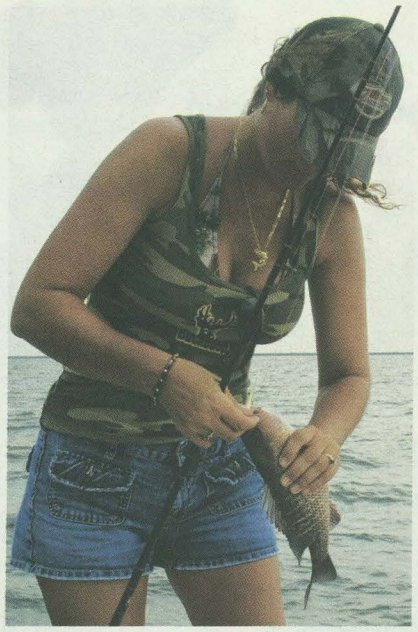
It's a calm day on Tampa Bay in July and the heat of mid-morning is already stifling. I load my quarter-inch cast net into the boat as my friend Keli Emery arrives. Keli is one of Tampa Bay's consummate female anglers – she owns a flats boat and can throw a 10-foot cast net. She told me she had found some bait on the flats south of the Little Manatee River the previous weekend and we left the dock in search of it.

Water clarity on the flats is murky from the previous night's thunderstorm on the outgoing tide and it's hard to see much. We idle around for nearly an hour seeing only pods of bait that were too small to put on a hook. Finally, we see some bigger flashes below and I toss the net. I get half a dozen 3-inch baits and a net full of tiny sardines for my trouble. We repeat this a dozen times before we finally have enough bait.

Our plan is to look for cobia and tripletail on the channel buoys in the middle of the bay, a good thing to do during the summer months. The cooling effect of putting the skiff on plane every 10 minutes or so makes the heat almost bearable. We stop the boat and start fishing on a buoy just west of Port Manatee. We pull up to a green can and Keli pitches a sardine rigged on a circle hook below a quarter-ounce egg sinker right next to the buoy. Practically as soon as it hits the water there is a strike. As Keli reels the fish into sight I'm amazed to see 20 keeper-sized mangrove snapper following the hooked fish back to the boat.

"Did you see all those fish?" Keli asked.

"I sure did. That was a mess



Above: *Watch your fingers when handling mangroves – they are called snappers for good reason.* ***Below:*** *Jim Jordan and his son, Jimmy Jordan, and grandson, Jake, make snapper fishing a multi-generational affair.* ***Facing page, top:*** *Capt. Larry Malinoski with an average-sized snapper.* ***Bottom:*** *In the summer months, they can be much bigger, such as the one caught by Keli Emery.* ***Center:*** *If you hope to catch big snapper, you have to fish with big baits.*

of snapper, and they were all legal!"

The limit for mangrove snapper is 10 inches, and all the fish we saw were four or five inches bigger. Our focus quickly shifted from cobia and tripletail to mangroves. In the heat of summer, you have to go with the flow. Instead of anchoring, I kept the motor running and held the boat off the buoy in easy casting distance, but it was a chore because the outgoing tide was so strong. The fish didn't seem to mind the motor, and before we knew it, we had eight fish on ice.

Whenever I'm fishing for the table, the most important thing to have is a well-iced cooler. Any fish is going to taste better if you get it into a slurry of ice water as soon as it's caught. This serves the same purpose as bleeding them, without the mess. Submerge any fish in ice cold water and it will draw its blood into its internal organs. Few fish on Tampa Bay taste better than mangrove snapper, so it pays to treat them properly.

They were hitting 3-inch sardines pretty well that morning, but the bait was so hard to find I began to wonder out loud if they would eat frozen threadfins. I always try to keep an ample supply of frozen threads in the freezer, packaged 10 to a plastic bag. The threadfin is an oily, smelly fish that readily sheds scales, making it a perfect offering for most gamefish.

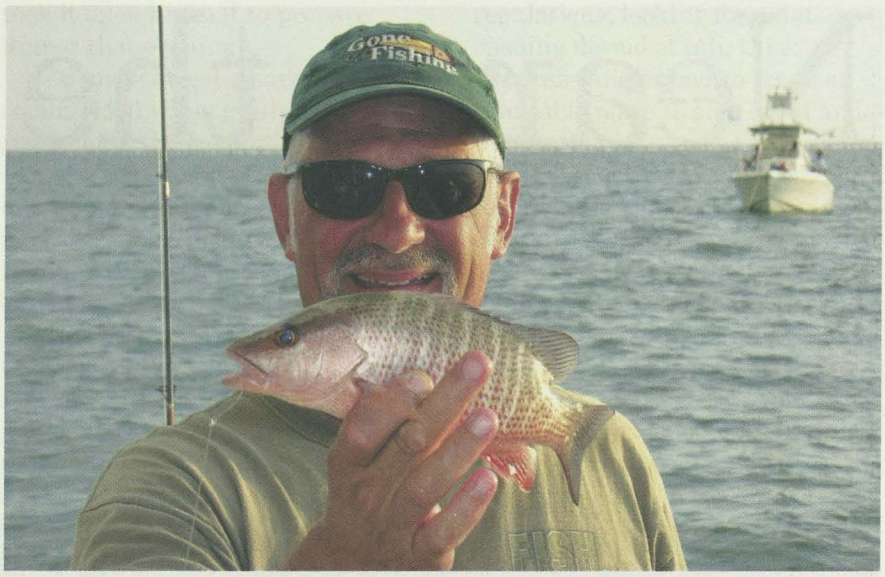
The only tricks I know to fishing with frozen bait is to keep it ice cold. I cut it and put it on the hook frozen, and that way I get a few casts out of it. The next day, I rigged a small chunk of bait on a jig hook and pitched it under a can, and my suspicions were confirmed with a heavy strike. Yeah, big mangrove snapper will eat frozen threadfins. Of course, shrimp will always do, alive or frozen, but even they can be difficult to come by in the summer months. Small and medium shrimp are perfectly suited to the small-mouthed snapper.

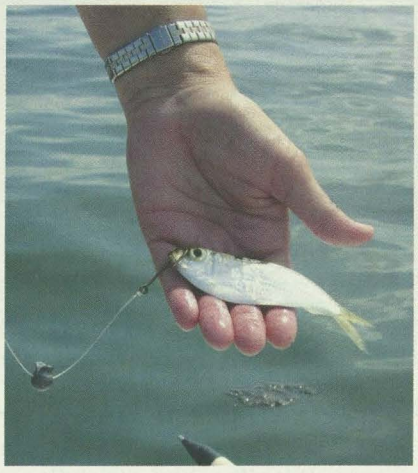
Keli prefers to rig her baits on circle hooks with an egg sinker tied in above the hook. She caught more fish than I did, so I will give her the edge. I went one better, and on my next trip

I tied the leader on with a barrel swivel and rigged the sinker above the swivel. Mangrove snapper are notoriously leader shy, and I've got to believe that a quarter-ounce egg sinker sitting on the eye of the hook has to deter some strikes, but that's only a theory as yet. This is a fish made for 15- to 20-pound fluorocarbon, as they are notoriously leader shy.

I went back to the same cans the next day with Tom White, but we got there a couple of hours earlier and the tide wasn't moving. We caught a couple of fish on live shrimp that probably would have measured up to the legal size, but I have pretty strict policy about not cleaning fish less than 15 inches, regardless of what the legal limit might be. In any event, the bite was a lot better the day before when the tide was ripping out. I also experimented with cut bait, and I caught a small grouper and was broken off once by a snapper, so it worked.

If you have fished for snappers, you probably know how they got their name. You want to be very careful handling even the small fish. They are toothy, and they bite anything that passes in front of their head, including angler fingers. A long handled hook-removing tool is highly recommended.





Keeping the fish you are going to eat on ice serves two purposes. Ice-cold dead fish are much easier to clean, and they will taste much better. You don't want to deal with a fish flopping around on the cleaning table, especially if they have teeth. After I skin each filet, I like to rinse it off with the hose, put it in a plastic bag and return it to ice. The longer you keep any fish out of air temperature, the better it's going to taste.

Keep a close eye on your line and leader when fishing around buoys. Fish will take you into the chain and abrade your line or leader, or cut you off. Run three or four feet above the hook through your fingers after catching every fish and tie on a new leader if it's chafed, and you won't have many break offs. The one problem with fishing cut bait is that it also attracts Spanish mackerel. If the macks move in, you will either have to upgrade your leader to 60-pounds, or move on to another can. But moving around on a hot summer day is refreshing, and it will keep you on the water longer than is possible sitting in one spot. FW

Nearer the earth

Article and photographs by David Schneider

As I write this, the sun is coming out and it is turning hot and beautiful, wrecking an otherwise perfect autumn couch-potato football day. I love my home in the Florida Keys, but this time of year, I feel the seasons of my youth...

I took my son Robert dove hunting yesterday and, of course, Dad came along. He wasn't physically in the car with us as we headed north to the Everglades Frog Pond in South Florida, but he was there as surely as if he were in the driver's seat.

Robert called him on the cell phone to wish him well as we reached the entrance to the Frog Pond, where the C111 canal crosses Highway 9936, leading to the park.

Doves had replaced deer. It was mid-November, and if we had been up North with the rest of the family, Robert and I would have been entering the cold, snowy confines of a balsam fir bog, hunting for whitetails on the opening day of deer season. But we lived in the Florida Keys now, land of tarpon and bonefish and spiny lobster. Very enjoyable pursuits, but they hardly substituted this time of year for an autumn hunt with a gun in your hand, especially for a man from the Midwest and his son.

So Robert and I would spend opening day doing the next best thing down here, hunting doves. And it occurred to me as I parked the car that, had I grown up here, this is what Dad and I would probably be doing this day every year.

As I climbed out of the car and watched Robert go to the gun cases, a gust of humid air brushed my face. It was a cool breeze; a rare cold front had passed through last night, instilling a familiar wrench inside me that came this time of year, every year, no matter how long I've been away from home. It drives me. Not just

to hunt, but to feel the crisp air, to see the frost on burnt amber leaves, to smell the woods, to be warmed by the company of those I admire and respect, and miss greatly, this time of year.

I watched Robert take the .410 out of its case. It's the same shotgun Dad gave me when I was Robert's age. I remember the first time I ever shot it. Dad and his old buddy, Gene Rankin, took me out in the sticks with a box of clay pigeons. I broke the second one out of the thrower, as I recall, then never hit another one all day.

As Robert geared up, I said a word of thanks that Dad was still with us this morning. Last night, he'd had a small stroke, what doctors call a transient ischemic attack or TIA, at my sister's while preparing to go up to our northern Wisconsin cabin for opening day of deer season. I silently asked that he not be too disappointed the doctor forbade him to make the trip this year. He would have to watch my brother-in-law, Lee, and nephew, Michael, back out of the driveway wearing all that blaze, while he stayed behind with my sister

I smiled at the thought of those hunters having to cook for themselves at the cabin since Dad wouldn't be there. We never ate better than at deer camp. Dad always went all-out for us in the cabin's tiny kitchen.

I remember the year Dad had to leave deer camp early to be with my grandfather who, now that I think about it, had suffered a stroke on opening morning.

Dad had left us a pork roast in the refrigerator for that evening's meal. Normally, he would have returned to the cabin early in order to put the roast in the oven under a slow heat for the other hunters to enjoy upon their return from the woods. My Uncle Lloyd, who could sniff out 8-point swamp bucks in his sleep, but didn't know a meat thermometer from one of his welding torches, took it upon himself to prepare dinner that evening.

"Somebody get a saw," he commanded while pulling the roast out of the ice box.

My earlier mid-stand daydreams of an apple-roasted pork dinner turned into the reality of fried pork chops with ketchup.

Robert and I started down the levee of the C111 canal, also known as the Aerojet Canal, named for the company that was to build huge rocket boosters for NASA's Apollo moon program in the 1960s. The canal had been dug out of the limestone and sawgrass of the Everglades in order to float huge solid rocket segments from the nearby plant to the Intracoastal Waterway and ultimately up to Cape Canaveral.

The plans were eventually scuttled. Another company won the NASA contract, and the rocket plant's buildings and hangars, once on the cutting edge of technology and discovery, sit now as rusting relics while turkey vultures and red-tailed hawks fly on the thermal currents high above.

Robert and I walked the levee with unloaded guns, per regulations, looking for a flat opening devoid of tall, thick sawgrass and palmetto scrub as a suitable place to step down and wait for doves.

The cool breeze whistled through the leaves of mahogany and buttonwood trees growing high on the levee, and it sounded strange to a Wisconsin boy in November.

We saw no doves. In Southeast Florida, the Frog Pond Wildlife Management Area, a special-permit area made up of an old agricultural field sold back to the state as part of the Save The Everglades initiative, is about the only public hunting spot that is open and accessible enough to take the abundant birds, but on that day, it was closed to hunting, so we had to settle for the levee.

But it was a wonderful day, with wispy cirrus clouds dipping and turning to puffy cumulus, preparing to transform the patchwork blue sky above into the familiar daily Everglades rain machine. The Aerojet Canal, straight and wide, narrows into the Glades, beckoning to where Von Braun's mighty Saturn rockets were to be built.

Robert was up ahead, his

Above: *(from left) Family friend Neil, Mike, Lee and Bob (Dad).* ***Facing page:*** *David Schneider and son Robert walk along the levee of the C111 canal, also known as the Aerojet Canal.*

Above: *David and Robert rest in the heat of the day.* ***Below:*** *A rocket plant's buildings, once on the cutting edge of technology and discovery, are now rusting relics.*

trigger finger getting itchy, and I regretted not being able to give him a better hunt. Yet, as I called ahead to him, how could it get any more beautiful than this?

It was 4:30 in the afternoon; 3:30 in Wisconsin. Up at the cabin, Lee and Mike and the others were probably settling in to their late afternoon buck stands for "happy hour," when the North Wisconsin pine forest turns silent, and light snow flurries dance amid the soft dimming twilight. I was certain Dad was thinking of the same thing at that moment and, once again, I thought about him.

I don't know how many stories I have told my son beginning with the words "when I was your age," concluding with tales of Dad and Lee and Uncle Lloyd and cousins Mike and Skeeter and squirrels and tree stands and buck snorts and breakfasts before sunrise.

I continue those stories to this day, and in doing so, I am ever conscious of new traditions accompanying old ones, and the word legacy is never far from mind.

My thoughts turned to the past month, when Robert and I traveled to Wisconsin for nephew Mike's wedding. I had purposely set an extra day aside so we could go grouse hunting together. It would be Robert's first hunt with his grandfather. Dad's days of hunting are pretty much done now; it hurts him to merely walk some days, but he came along anyway, for moral support. I suspect he knew how important it was to me – and to Robert. It was a day I'll always remember. Those were my thoughts as Robert and I drove home from our day in the field. More than once, Robert asked me what the smile and the sighs were for. All I could say was "You'll see someday, Son."

Those who love the outdoors will recognize the symptoms that accompany falling leaves and a west wind veering north, but the sportsman displaced by time, geography (and perhaps wanderlust) will truly know the dilemma I face this time of the year, every year. It transcends work, chores, women – all enjoyable pursuits and routines.

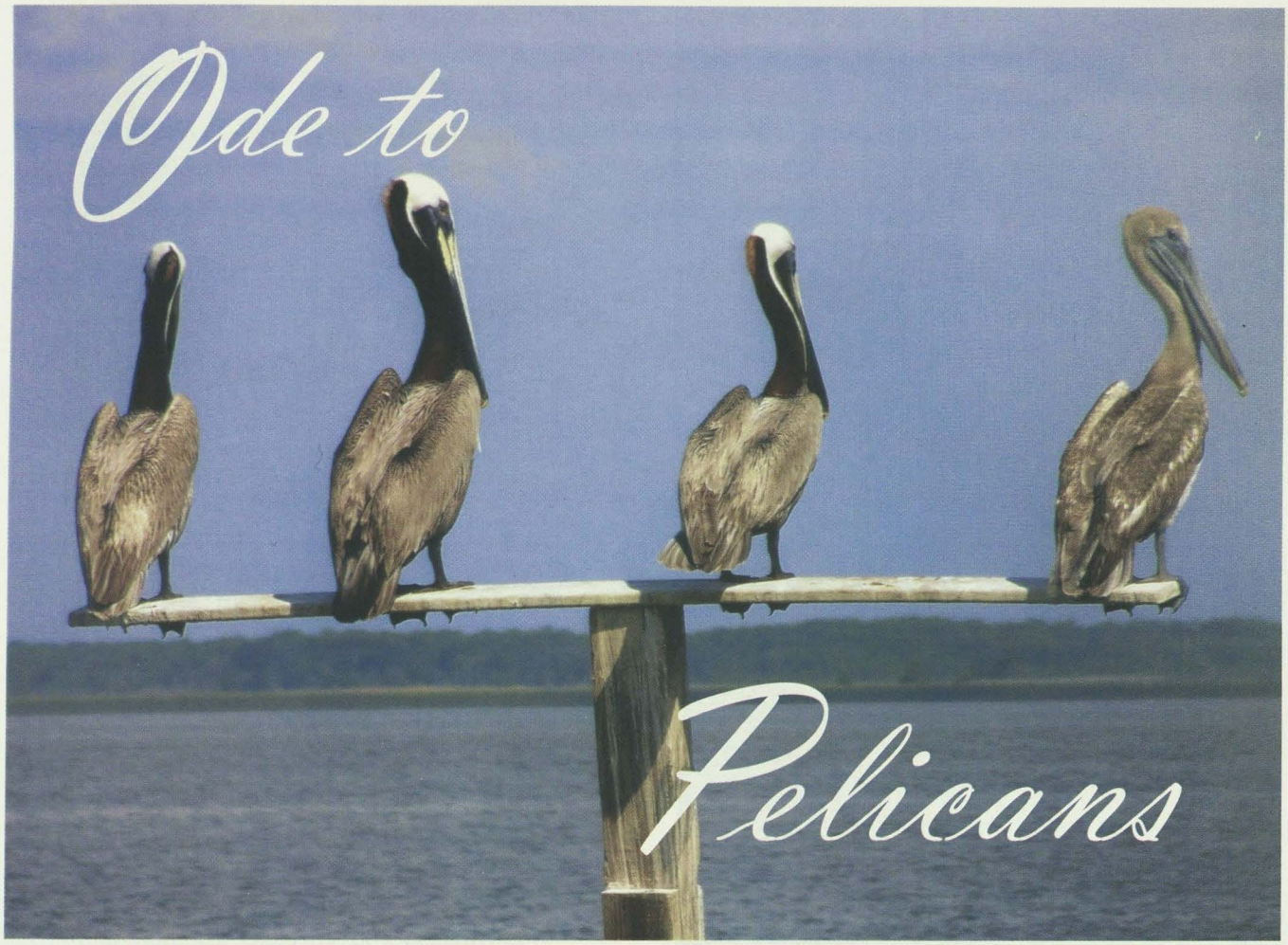
Is it not unlike the blind yearnings of the swallow and the whale this time of year? Yes and no, because in the human it seems to envelop not just the soul but the heart as well. It is joyful to contemplate, yet somehow nearer to the earth.

To quote my favorite line from the film "The Deer Hunter," "This is this." Simply, we must all live in the now, and in doing so appreciate that which transcends.

On the stretch of U.S. 1, driving south toward our island home, I looked over at Robert, dozing in the passenger seat. The sun was setting over Florida Bay to my right, and Barnes' Sound glowed to my left. My eyes returned to the road and again, I smiled.

My son was with me, as were Dad's lessons and love, and the outdoors will always whisper what matters.

Hot or cold, the important things stay the same. FW



Article and photographs by Lazaro Aleman

Circling high above the water, one after another of a dozen or so brown pelicans would suddenly turn, bank and dive headlong into the sea, emerging seconds later with a mouthful of fish in their oversized bills. What a show – the sudden turning, banking and plunge diving! Always, a hopeful seagull or two would hover near the prize-holding pelican, pestering it for fish. But the larger bird would patiently bide its time, serenely bopping on the water until just the right moment, when it would lift its head and swallow its catch in a series of gulps. Then it would lift off again cumbersomely, flapping its wings in slow, strong steady beats and slapping the water with its feet until gaining momentum and altitude.

Another pelican, another headlong plunge, another mouthful of fish. All along the deserted winter beachfront, the enterprising brown pelicans hunted for fish, as did a school of dolphins farther offshore, their dark fins breaking the water surface every now and then, the only indication of their whereabouts.

It was a bitter cold and gray February day on Mexico Beach in Northwest Florida, with frequent rain sprinkles blowing in from the low-flying, rapidly moving storm clouds that roiled eastward, part of an incoming cold front. On the far western horizon, a narrow strip of silver lining barely defined the demarcation between the deep purple sky and the gray, slate-green coloring of the ocean. Every now and then, a glimmer of late afternoon sunlight would briefly break through the heavy cloud embankment, reflecting a momentary path of ghostly light on the water. But mostly, the view remained isolated and forbidding, except for the

Three adults and a juvenile brown pelican keep watch over Apalachicola Bay from their perch near shore. Pelicans are diurnal (active in the daytime) and spend much of their time resting and preening.

dolphins, and especially the pelicans' lively and compelling performances.

What is it about these large, lumbering almost-prehistoric-looking seabirds that so enthralls and fascinates me? Certainly, pelicans are not readily striking in appearance, and may even appear dull, common and gawky to many, with their awkward walk, brown plumage, stubby legs, long necks and oversized bills with distensible skin pouches. Nor are they above panhandling fishermen for handouts at the docks, piers and marinas where they commonly congregate. But view them in their natural element in the wild, and no one can deny their beauty, gracefulness and, yes, dignity.

My own long and pleasant association with pelicans dates from youthful days in South Florida, where my father and I would often go shore, bridge or boat fishing on Miami's bays and inlets and in the Florida Keys. Truly, from South Beach, Biscayne Bay and Islamorada, to Mexico Beach, Apalachicola Bay and St. George Island nowadays, the ocean has ever been part of my life; and pelicans have been part of that world. But it was my wife, Susan, whose

Above: *A group of brown pelicans glide in formation over St. George Island.* ***Left:*** *An injured juvenile pelican recovers near shore after being rescued from some fishing line that had entangled it and caused it to dangle from its perch. More than 700 pelicans die annually in Florida from fishing gear entanglements.*

fascination with pelicans borders on the fanatical, who really made me aware and appreciative of the birds. Susan doesn't see a pelican without being thrilled.

"They're just so cool," she enthuses, which is surprising, given her usual articulateness and equanimity.

But pelicans are cool, and cool to watch, notwithstanding their seeming stodginess. Pelicans have been around some 40 million years and, for the most part, have enjoyed a long and rich relationship with men, figuring into the myths, legends and literature, and even serving as a Christian symbol of mercy and piety to the present. One of the largest birds capable of flight, the brown pelican is the smallest of the seven pelican species worldwide. And they are the only exclusively marine and skydiving member of the group. Keen-eyed to the extreme, brown pelicans can spot fish from 50 to 70 feet high; and because they're equipped with internal air sacs that cushion the impact, they are able to make spectacular headlong dives. That's where their singularly unique bills come in handy, as pelicans use their pouches as dip-nets to scoop up fish, along with up to three gallons of water. Resurfacing, they squeeze the water out of their bills and swallow the fish.

But to really appreciate pelicans' grace and elegance (and maybe get a lift of heart in the bargain), observe them in flight, gliding solo or in formation along the coastline or a beachfront or skimming just above the water's surface.

Sadly, brown pelicans nearly vanished during my lifetime. Indeed, it was only in late 2009 that the U.S. Fish and Wildlife Service removed brown pelicans from the endangered species list, after four decades of federal protection following the birds' near demise in the 1950s and '60s. True, pelicans in Florida never suffered the population decimation that they suffered elsewhere in the country, and consequently were taken off the endangered list as early as 1985. But without the banning of pesticides such as DDT and the restrictions placed on others in the early 1970s – combined with habitat restoration and other concerted protective measures – pelicans likely would be only a memory today. Thankfully, the birds have rebounded and now number more than 650,000 in Florida, the Gulf and Pacific coasts, and the Caribbean and Latin America, according to the USFWS.

Still, brown pelicans remain vulnerable to runoff, fishing gear entanglement, coastal wetlands destruction and other human development pressures. Man, in fact, poses the greatest threat to pelicans, as he has from the 1800s, when hunters raided the nests for eggs or wantonly slaughtered the birds for their feathers in the name of women's fashions. And in the 1920s, commercial fishermen blamed pelicans for reduced fish yields and indiscriminately killed the birds in retaliation. Fortunately, individuals, groups and governments stepped forward each time and championed the birds, establishing wildlife sanctuaries, adopting state and federal protective measures and undertaking conservation efforts.

And so the brown pelican continues to grace the coasts, an integral and iconic member of Florida's seashore community and a reminder, to those of us who care about the environment, of what's right with the world. So long as brown pelicans thrive, they assure us that conservation can make a difference, and that the coastal ecology remains relatively healthy. Long live the pelicans. FW

A solitary brown pelican awaits daybreak on a channel marker near Mexico Beach.

Field Notes

Florida Fish and Wildlife Conservation Commission sworn personnel are fully constituted police officers with the authority to enforce all laws of the state, not just those relating to resource conservation.

Got a gator in the net

Officer Larry Morris observed a vessel on the Choctawhatchee River with freshly caught fish. He did not see any fishing poles or rods. The fish showed signs of being caught with a net. Another nearby vessel also had freshly caught fish. An investigation revealed two men used an entangling net to catch the fish. A sheriff's deputy assisted and overheard one man say, "I'm going to jail. I got a gator in the net." Officer Morris eventually recovered the net, still set, with an alligator in it. Officer Morris released the alligator and the fish, seized the net and issued both men citations for taking game fish by illegal method and for possession of an alligator.

A sinking feeling

As Officer George Karlton was returning to the dock from a missing boater search, a man and woman in a boat frantically waved him down. Upon his approach, Officer Karlton realized their vessel was taking on water. As he got close to the vessel, it rapidly sank beneath them. Officer Karlton immediately rescued the man, woman and a dog from the cold water.

Just sign on the line

Officer Jeff Beal was on water patrol in an idle zone and stopped a subject for a speed violation. Upon issuing a non-criminal uniform boating citation, the subject refused to sign the citation, acknowledging receipt. Three times Officer Beal explained to the subject the consequence for refusing to sign the citation, and finally arrested him for refusing to sign a uniform boating citation.

Quick search

FWC officers responded to a manhunt for a suspect who had pointed a firearm at deputies then fled on foot in a wooded area after a short vehicle chase. Pilot Joe Johnston, several SOG members, Department of Correction K-9 teams and Bradford County deputies assisted in the search. Two search teams tracked the armed suspect. A mile into the search, the suspect was seen and contact was made by Officer Bret Gill's team. The suspect was taken into custody and transported to waiting deputies by SOG Lt. Jay Russell.

What's that stick for?

Officer Blake Hoelscher was on plainclothes patrol when he stopped a boat coming into a boat ramp. He conducted a fisheries inspection and found a fisherman to be in possession of 10 undersized sheepshead. Officer Hoelscher asked if he had anything to measure the fish with and the fisherman gave him a "Florida Sportsman Law Stick" ruler. The law stick is a fold-out ruler with Florida's legal size and bag limits for regulated saltwater fish. Officer Hoelscher saw a second law stick in the form of a decal on the front deck of the boat. Officer Hoelscher issued the individual a citation for possession of undersized sheepshead.

Zip it

Officers Brian Cazalot and Justin Koble were conducting boating safety inspections when they stopped a vessel with six individuals on board. One of the occupants exited the vessel, walked over to the dock and started urinating in front of several other boaters. When Officer Cazalot addressed the individual, he became irate and started cursing at the officer. Officer Cazalot then arrested the individual for disorderly conduct.

Stopping the stop netting

FWC officers received a citizen complaint regarding an illegal gill net stretched across a creek in a wildlife management area. Upon arrival, they found a monofilament gill net stretched across the creek. It appeared the net had been recently deployed and was set in such a manner as to stop the migration of freshwater red horse suckers that swim up the creek to spawn. Officers set up surveillance on the net, and two days later apprehended a person who returned to

FWC charges four men for possessing migratory birds

You may see them around your backyard feeder. They are prized for their colorful plumage. Indigo and painted buntings are migratory songbirds that winter in South Florida and migrate north in the spring, but some make a year-round home in the Sunshine State.

With their numbers declining because of habitat loss, these beautiful birds face an additional ugly threat: the exotic pet trade. The buntings, protected under the Migratory Bird Treaty Act, are frequently trapped and sold. The FWC continues to break up these rings and release the captive birds back into their natural habitats.

From April 3-6, in three separate cases, FWC investigators arrested four Miami-Dade men, charging each with the illegal possession of migratory birds,

FWC FILES

The FWC released the birds in these photos and seized the traps.

FWC FILES

a misdemeanor. One of the men was arrested for the same violation in 2005. He was booked into the county jail and could face enhanced penalties.

FWC officers released 20 captive birds – 19 buntings and one cardinal.

"These birds do not belong in captivity; they belong in their natural habitats to proliferate and continue the species," said FWC Lt. Jay Marvin. "The public should be aware that trapping, possessing, buying and/or selling these birds is a violation of state and federal laws and can result in hefty fines and possible jail time."

The public is asked to call the FWC's Wildlife Alert hotline – 888-404-FWCC (3922) – if they witness any suspicious activity or any people with small, wooden bird traps.

tend the net. When the officers identified themselves, the suspect had already removed nine entangled red horse suckers from the net. The suspect was cited for taking freshwater fish by illegal method and stop netting (setting a net across a creek from bank to bank).

Illegal transport

Officer Erik Steinmetz assisted a U.S. Customs and Border Protection patrol vessel stop a 42-foot sailing vessel. CBP agents discovered 13 illegal aliens hiding inside the cabin compartment. Officers Scott LaRosa, Raquel Daniels and Mike Milillo responded to assist. The operator of the sailing vessel, a resident of Key Largo, was illegally transporting Haitian, Jamaican and Peruvian nationals. A firearm and $10,000 cash also were discovered onboard. Officer Daniels issued numerous citations for registration and boating safety equipment violations while the smuggling case was handled by CBP.

Baby rescue

Officer Carolyn Russo was on patrol when she received a call about a baby red-shouldered hawk that had fallen from its nest after a bad storm. The officer drove to the caller's house, rescued the baby hawk and took it to a permitted care facility.

Almost got away

Officer Davis was on patrol, but at a gas station, when a civilian notified him that a person had been struck by a vehicle. Officer Davis responded to the scene and found the victim lying on the side of the road with some people providing aid. The suspect vehicle had pulled over and was parked farther ahead. A second vehicle arrived, and amidst the confusion, the suspect driver left the scene in the second vehicle. Officer Davis was able to catch the vehicle, stop it and contain the suspect. When asked why he left the scene, the suspect stated he didn't know what he had hit and thought "it might have been a beer bottle." Officer Davis believed the suspect was under the influence of a narcotic. Deputies arrived on scene and arrested the suspect. The victim was airlifted to a hospital with no word on his condition.

FWC lieutenant honored by U.S. Attorney's Office

FWC FILES

He would humbly tell you he was just doing his job. But the federal government calls the marine conservation work of FWC Lt. David Bingham "outstanding."

Last month, the United States Attorney's Office for the Southern District of Florida honored Bingham, who heads a patrol squad in Broward County, with an Outstanding Law Enforcement Officer of the Year award. Federal, state or local law enforcement officers who distinguish themselves by virtue of the work they performed in a criminal prosecution receive the award.

"Winning this award is a highlight of my career," said Bingham. "It's rewarding to know that the federal government recognized the FWC for our work in resource protection."

The award recognized Bingham and NOAA Special Agent James Rodriquez for their work in "Operation Mind Games." The two worked together in 2005 to bust charter fishing vessels based in North Miami Beach for illegally harvesting and landing sailfish. The scheme also included an undisclosed deal between the charter operation and a local taxidermy company to pay the defendants for inducing anglers to sign contracts for mounting the sailfish. The defendants in the case were sentenced in 2008.

"Lt. Bingham's expertise in dealing with state and federal fisheries is a huge asset to our agency," said Bingham's supervisor, Capt. Denise Warrick. "The cases he has been involved with have brought a tremendous amount of revenue dollars back to Florida. We are proud that he has been recognized by the U.S. Attorney's Office for his efforts."

"Lt. David Bingham's efforts in this case not only led to the conviction of a team of environmental criminals, but resulted in restitution to hundreds of anglers, mostly tourists, who had been scammed by the charter group," said Assistant U.S. Attorney Thomas Watts-Fitzgerald, who prosecuted the case. "The illegal landings and fraud on our state's visitors would likely never have come to light and been subjected to both state and federal scrutiny but for his dedication to resource protection. The public should applaud and support such cooperative enforcement efforts by the wildlife officers and agents of South Florida."

Trespassing

A landowner called about two people with firearms trespassing on his property. Lt. Steve Stout, Officers Lee Lawshe and Rich Wilcox were in the air nearby. Lt. Stout landed close to the area, and the officers arrested the two suspects in possession of rifles. Officer Troy Starling arrived and assisted in the investigation. The landowner said he heard the suspects shoot several times. The officers found they had killed a raccoon and a barred owl. Officer Starling booked the suspects in jail for armed trespass.

Making up the damage

In 2005, FWC investigated a vessel grounding within the Florida Keys National Marine Sanctuary. The 53-foot vessel caused more than 130 square meters of damage to sea grass habitat. Recently, NOAA General Counsel successfully negotiated a settlement in the amount of $17,500 for damage assessment and restoration costs associated with the incident.

Dolphin rescue

Officers Kelly Kazmierczak and Clay McDonough assisted SeaWorld, Hubbs-SeaWorld Research Institute and others in the capture of a bottlenose dolphin in the Indian River. The dolphin was entangled in numerous monofilament lines. After successfully capturing the dolphin with a specialized net, the lines were removed and a tracking device was attached to the sea mammal. The dolphin had been previously captured in this area in December 2008 for similar reasons.

Second Place, tie

Nancy Tome ~ Life of a Hawk

2010 *Florida Wildlife* art contest winners

This year's *Florida Wildlife* art contest winner, Ed Takacs, is no stranger to the magazine's contest – his painting of a green-backed heron was the first-place winner in 1996. His acrylic painting of a pair of great egrets in breeding plumage is featured on this issue's cover and is being reproduced as signed and numbered prints, which will be used to raise funds for the Wildlife Foundation of Florida. Takacs is a wildlife artist from Bonita Springs who uses watercolors, oil paints and acrylics to capture the essence of wild animals, from his backyard to the plains of Africa. Visit edtakacs.com to see more of his artwork.

Second-place was a tie, with honors going to John R.L. Isaacs XV of Tallahassee for his acrylic of swallowtail butterflies on thistles and to Nancy Tome of Plantation for her acrylic on masonite depiction of a hawk resting on a tree limb after capturing its dinner. More of Tome's work may be seen at NancyTome.com.

Third-place was a tie as well, and both paintings depict an alligator, albeit in very different styles. Kathleen Maling of Saint Augustine painted an alligator in bright, impressionistic watercolors, while Ed Takacs' realistic alligator, with tooth showing, lurks in the shallows.

Second Place, tie

John R.L. Isaacs XV

Tiger Swallowtail Butterflies on Thistles

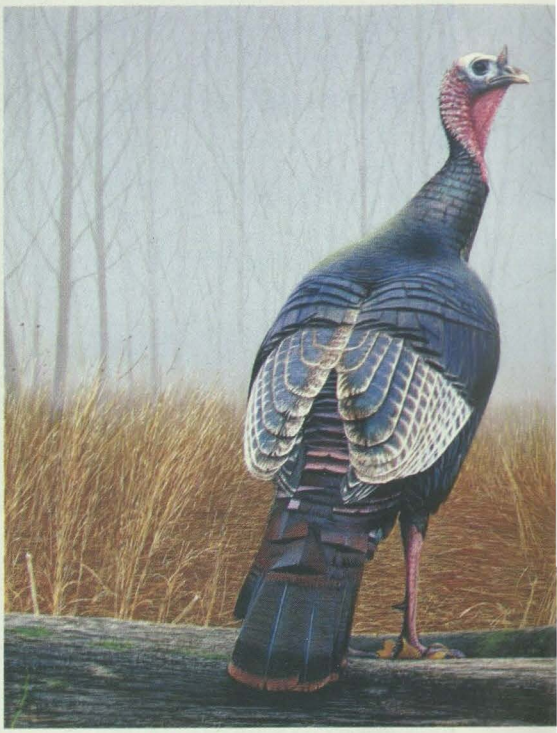
First Place

Ed Takacs

Great Egrets Courting

Third Place, tie

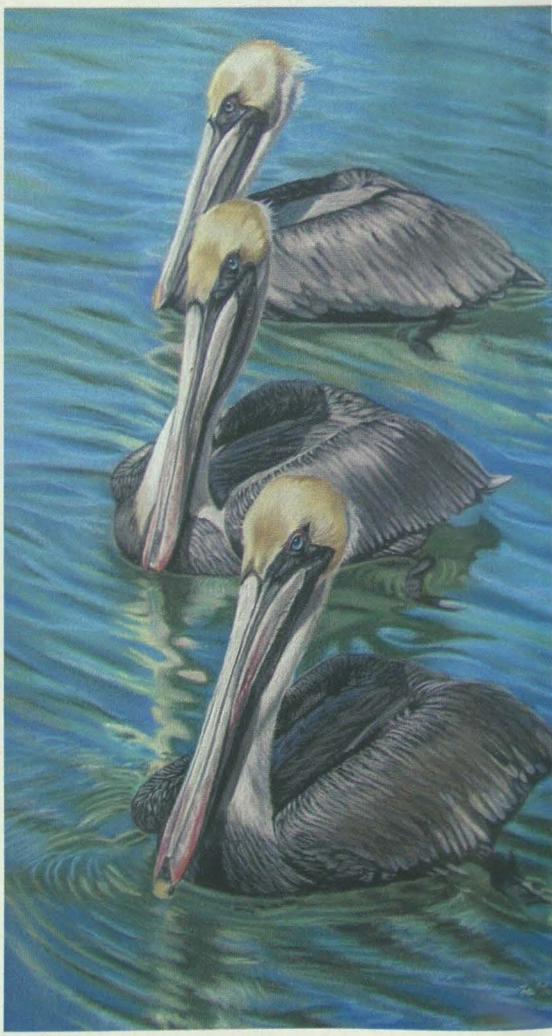
Ed Takacs ~ Alligator



Honorable Mention

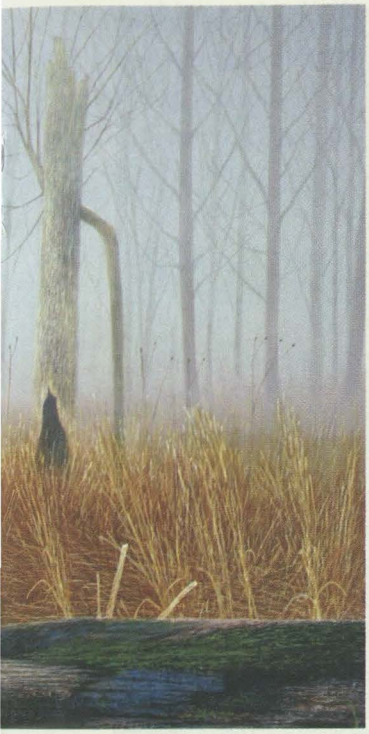
Clarence Stewart ~ On Alert (wild turkey)

Deborah La Fogg-Docherty ~ Pelican Pat



Deborah La Fogg-Docherty of Boynton Beach was awarded an Honorable Mention for her pastel of three pelicans, as was Clarence Stewart of Brewton, Ala., for his acrylic of an eastern wild turkey, and John R.L. Isaacs XV, for his acrylic of a pair of wood ducks.

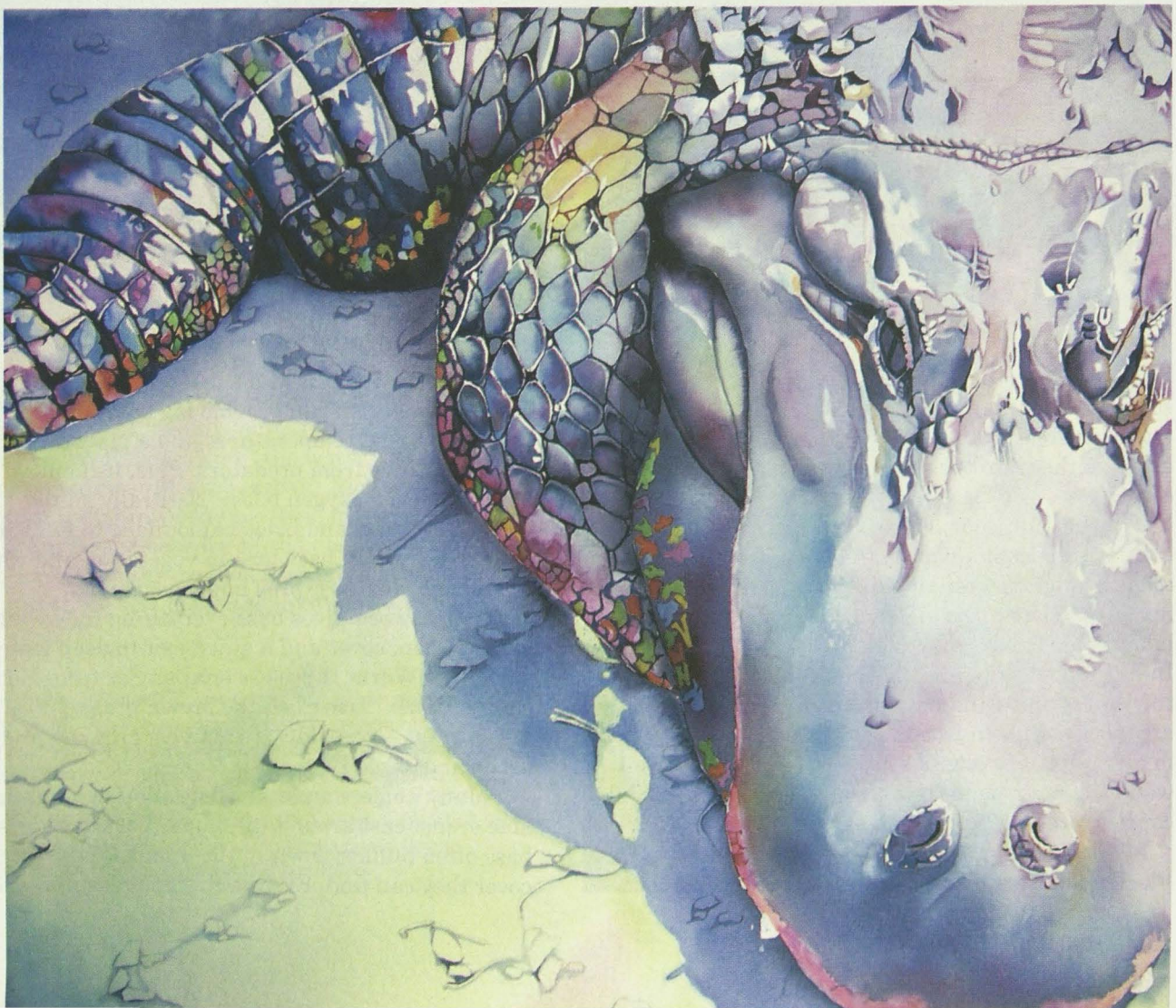
Entries for *Florida Wildlife's* 2011 Art Contest will be accepted through March 18, 2011. Rules and entry form are on the magazine's website, FloridaWildlifeMagazine.com. FW



John R.L. Isaacs XV ~ Wood Duck Pair;

Third Place, tie

Kathleen Maling ~ Alligator



Go under cover when the heat turns up

Article and photographs by John N. Felsher

When the heat turns on in Florida and even the air seems to sweat, anglers and fish need to find cooler temperatures. In summer swelter, bass usually head deep – either into the depths or deep into shady cover.

In the multitude of shallow natural lakes with little bottom contour that dot the Sunshine State, anglers might search in vain for deep water. Cooling subterranean springs bubble up through some lake bottoms, but most anglers need to find shade. In Florida, shade typically comes in the form of thick weed beds and natural cover such as trees and docks. Hidden from a broiling sun, shady water might stay a few degrees cooler than surrounding waters. Even a slight temperature difference could concentrate fish in a tight sweet spot.

Thick vegetation dominates the cover in most Florida lakes. In some areas, aquatic vegetation grows so thick that it forms massive mats. Such matted vegetation can provide big bass with an escape from hot temperatures and a place to hunt for food or hide from predators. Plus, fish enjoy a much-needed oxygen boost. Naturally suited with their green and black camouflage to hunt in submerged grass, bass lurk in vegetation and wait to ambush whatever prey happens along.

"A grass bed gives bass everything they want – food, oxygen, cover and a quick exit to deep water," said Mike Wurm, a professional angler from Hot Springs, Ark. "Don't fish the brown grass. Fish green grass – generally it's actively growing and producing oxygen."

Many anglers avoid matted canopies as unfishable or just cast around the edges, but the biggest bass often hunker down in the middle of the thickest cover they can find. Even in highly pressured areas,

anglers might challenge bass that few people tempt. To pull Ol' Mossbacks from its grassy lair, either go around, over or through matted grass.

Spinnerbaits with slim willow-leaf blades cut through grass better than those with more rounded Colorado blades, but can't slice through solid vegetables. Anglers can run these lures through seams between mats or parallel to the edges. Buzzbaits can sometimes climb atop matted weeds and make super search baits. Even if bass don't strike, they might move or react to one in some way.

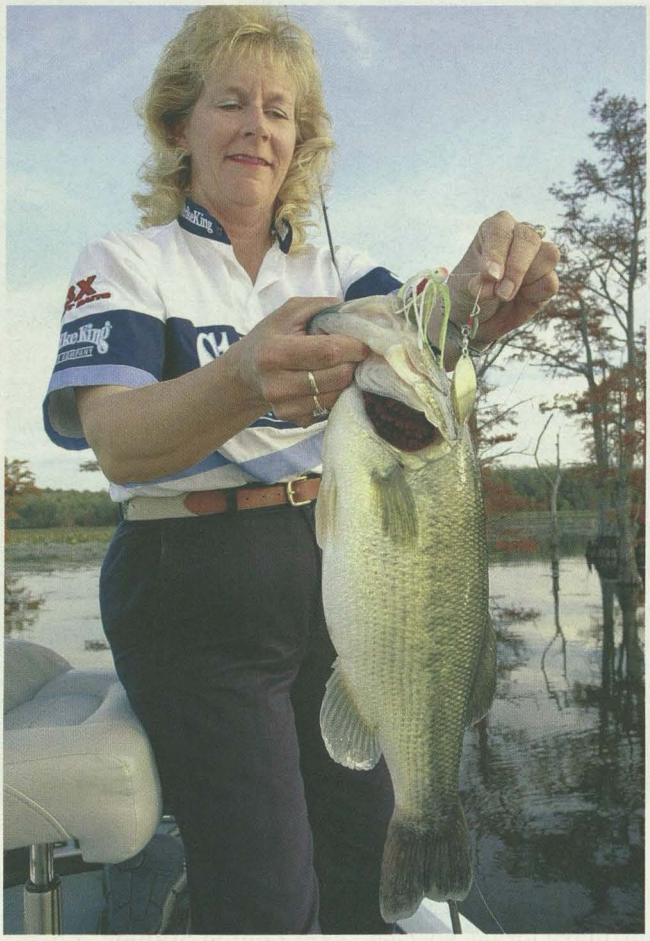
"I can cover so much more water with a buzzbait than with other baits," said Terry Scroggins, a professional bass angler from Palatka. "I throw it to find fish. Most buzzbait bites occur in water 3 feet deep or less."

If a bass strikes at and misses a buzzbait, follow up immediately with a more subtle presentation. Rigged with the hook point inserted into its soft plastic body and without a weight, a lizard, fluke, frog or similar creature imitation can slip over matted weeds. Light and lifelike, such baits closely mimic natural prey to hungry bass.

"A fluke is one of the best natural, subtle presentations," explained Peter Thliveros, a professional angler from Jacksonville. "Most fish don't make real aggressive movements in the water. They glide slowly or suspend. A fluke imitates that slow movement. It acts like a wounded fish."

For fishing flukes or other soft plastic creatures, use a "stop-sink-go" approach, especially in broken cover. Cast to a likely spot and let it remain briefly motionless. Depending upon hook size and cover thickness, it might slowly begin sinking. Pull it a few feet and let it rest again. When crossing pockets, let it sink and twitch before "crawling" it over pads or thick patches. Let it drop and sink in the next pocket.

For more aggressive action, few lures can reach bass hunkered down in thick mats like a buzzing frog as it sputters over grass tops without snagging. Pull it slowly, but steadily across mats, lily pads or similar cover. Its legs "kick" the water, making a commotion almost like a buzzbait. Rich in protein and often living in weedy patches, frogs comprise a significant forage base for Florida bass. Sometimes, giant bucketmouths explode through matted grass to engulf these soft-plastic temptations – weeds and all!



Top right: *Emily Shaffer, a professional bass angler from Mount Juliet, Tenn., unhooks a bass she caught on a Strike King spinnerbait.* ***Right:*** *Mike Iaconelli, a former Bassmaster Classic champion from Runnemede, N.J., shows off a bass he caught on a soft plastic jerkbait, a good lure for fishing thick weeds.* ***Facing page:*** *Stephen Browning, a professional bass angler from Hot Springs, Ark., flips a heavy jig into matted grass while fishing with his son Beau.*

Above: *Gerald Swindle, a professional bass angler from Warrior, Ala., lands a bass he caught on a jig with a plastic creature trailer while fishing a grassy shoreline.* ***Below:*** *Capt. Ron Rawlins of Highland Park Fish Camp admires a bass he caught on a spinnerbait while fishing in the backwater off the St. Johns River near DeLand.*

"While bass are opportunistic feeders and tend to feed on common prey most readily available to them at any particular time, frogs are one of their primary forage species," said Lonnie Stanley, a five-time Bassmaster Classic veteran and legendary lure designer from Huntington, Texas. "If a bass could order its food off a menu, it would probably pick crawfish first, frogs second and shad or bream third. In places where people can't even get a Texas-rigged worm to go through the grass, a Stanley Ribbit easily hops across the top."

With temperatures high and everything they need close, bass frequently grow lethargic in hot weather and refuse to move. Sometimes, anglers almost need to knock them on the heads to make them strike. Although a matted salad may seem almost impenetrable on the surface, beneath it, water may remain relatively open and clear. Dense canopies can nearly cut off all sunlight, giving fish ample room to maneuver through tiny channels between grass stalks.

To reach these lairs beneath the mats, slip streamlined Texas-rigged worms or tubes through tiny openings. Using a long rod almost like a cane pole, gently flip soft-plastic temptations with pinpoint accuracy into specific pockets between grass clumps or individual pads. After the bait hits bottom, bounce it a few times. Bass often slurp such temptations as they sink.

Sometimes, anglers need to create their own holes by busting through the roof. To smash into the lair of a bucketmouth beast, use a heavy jig sweetened with a pork or plastic trailer. Although most anglers use short-range flipping techniques to punch through cover, some toss jigs straight up into the air so they crash through thick grass like meteors.

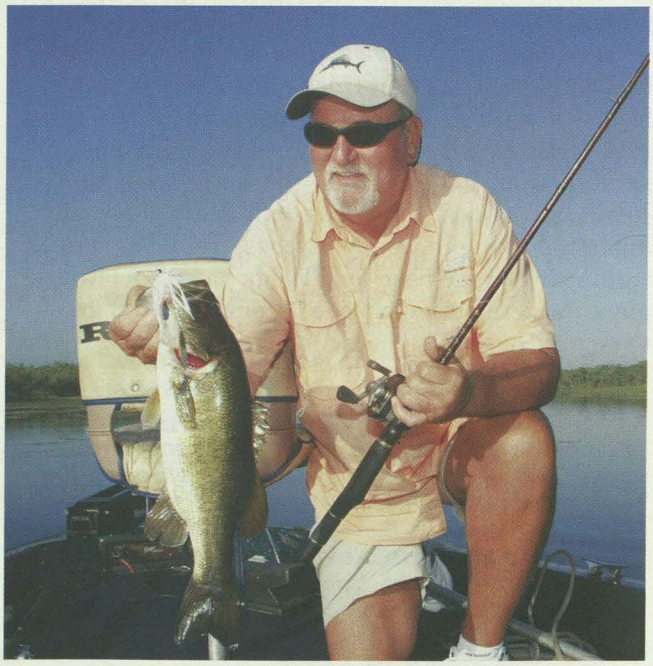
"Some of the biggest stringers at Lake Tohopekaliga come by smashing through grass mats with big weights," said Terry Segraves, a bass pro and guide on the Kissimmee Chain of Lakes near Orlando. "In the summer, we fish a 7-foot flipping stick with 65-pound braided line with a 1- to 2-ounce weight to smash through heavy mats. Find a little crack in a pocket and punch through that canopy."

Anglers can also find shade above the water. A tree-lined bank casts shadows on the water, but not all the time. Docks provide constant cover and overhead protection from birds of prey. Moreover, multiple pilings, bracing and other supports around docks provide additional cover.

Many dock owners create more cover by building nearby brush piles. To reach the best water under a dock, skip soft-plastic tubes or similar baits with a sidearm sling. Many docks sit over drop-off edges where bass hover, so work baits out from under cover into deeper water.

Don't forget boats in marinas, which also create shade. Algae may grow on the hulls or lower units, attracting bugs, baitfish and other forage. Marinas can also provide deeper water. Jig around the lower units or run lures parallel to the boats.

Of course, live bait always makes a good option. Large river shiners probably entice more lunker largemouths than anything else in Florida. In addition, many anglers beat the summer heat by fishing at night. FW



Paddling the Wekiva Wilderness

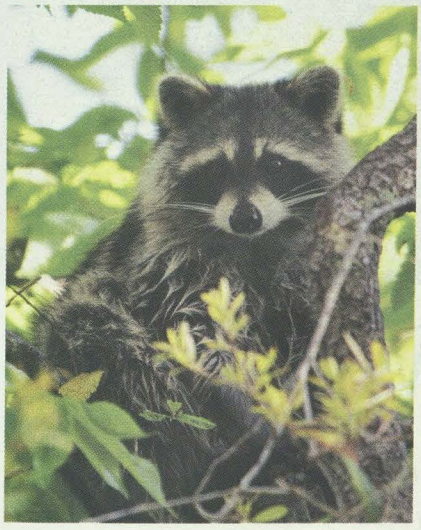
Article and photographs by Doug Alderson

The swallow-tailed kite cast an alluring spell. It swooped in front of us, inches above the water, stretched out its neck and opened its beak for a refreshing drink in mid-flight. Then it circled and repeated this exercise several more times. If ever there was a bird that symbolizes the Wekiva River system near Orlando, it is this one – quiet, gentle and graceful.

The kite was one of several wildlife species showcased during a three-day paddling adventure on this 27-mile stretch of natural Florida just above Orlando, from Rock Springs to the High Banks Landing on the St. Johns River. I joined four other friends who lived in the region, and along the way we were enchanted by a canopied watercourse, primitive riverside campsites and abundant wildlife. For hours, we paddled and drifted with the flow, eager to see what the river would reveal.

Soon after embarking from Rock Springs on a warm Friday afternoon, we felt enfolded by the arms of mature live oak trees festooned with resurrection fern. Arching palms, sweetgums, red bay and swamp maples rounded out the floodplain forest. The tannin-tinted river was lined with dollar weed, water lily and

A group of paddlers embarks from Rock Springs on a three-day paddling and camping adventure.



pickerel weed, and beneath us, eel grass swirled in the gentle current. Fortunately, this upper section appeared to have no hydrilla, a non-native water weed that has choked many a Florida river and lake. I hope this stretch will be spared.

Less than an hour into the trip, a small ribbon snake swam in front of my kayak, and I had to slow my craft to keep from running over it. Then, around a bend, we slipped past a water moccasin, partially coiled on a submerged branch. It eyed us closely, tongue flicking out to catch our scent, showing neither aggression nor fear. The same was true of most of the alligators and turtles sunning on logs. Many eyed us warily, but remained on their sun perches.

We stopped for the evening at Otter Camp, one of two primitive campsites established by the Wekiwa Springs State Park. The name for the springs and river, which simply means "a spring" in the Muskogee language, is spelled either "Wekiva" or "Wekiwa." Two more primitive campsites have been established by the Rock Springs Run State Reserve on the south side of the river.

No-see-ums were abundant at Otter Camp and so were raccoons. The furry critters watched us from nearby palmettos, perhaps hoping we would be careless with our overnight food storage.

Speaking of food, comparing my backpacking-ingrained minimalist tendencies with those of my paddling companions was easy, especially when I helped them load and unload their gear. I had never seen so much food and gear loaded into the 12-foot and 14-foot kayaks of Mike and Julia. There were three medium-sized coolers, a two-burner stove, a full cookware set and a large coffee pot. I carried some of it since I had extra space in my 17-foot kayak. Danny and Amanda, recently engaged, took a 16-foot canoe and they filled it with coolers and perhaps the largest plastic bin ever manufactured.

Setting up at Otter Camp, I pulled out my small propane stove and a pouch of freeze-dried chicken stew, while my companions set up a full kitchen. Soon, the aroma of sizzling vegetables and sautéed chicken and beef filled the still air. Fajitas were on the menu.

"You want some?" Julia asked. "We have more than enough. I should have told you not to bring any food. Planning the menu is one of my favorite parts."

I quickly put away my freeze-dried pouch and joined in. The difference between kayak camping and backpacking was starkly apparent, and I was the beneficiary of the lesson. There is no written or unwritten code that says you can't eat well while camping, so I partook guilt-free.

A lone Chuck-wills-widow and calling barred owls serenaded us to sleep that night, their voices echoing across the river corridor as they have for eons. For our alarm clock the next morning, a hammering pileated woodpecker announced the dawn. Arising from my tent, I was greeted with a mist-cloaked waterway. A sweet smell permeated the air. Mystery was intermingled with wild beauty.

Once we were on the water again, blue damselflies landed on sunlit grape vine tendrils. Swallowtail butterflies flitted about blooming duck potato, blue flag iris and the white blossoms of titi. All was quiet and wondrous, until we neared the spring run coming out of Wekiva Springs and the main entrance to the state park. We soon encountered a steady stream of canoes and a few kayaks. Many of the paddlers were inexperienced, as evidenced

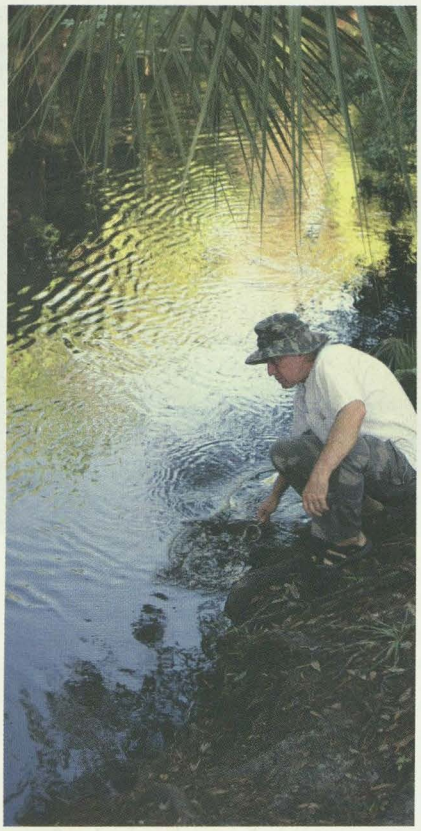
by their zigzagging and bumping into trees, logs and each other. This section of the Wekiva is one of the most heavily canoed in Florida.

We turned into the spring run and paddled slightly less than a mile to the headsprings in a quest to swim in clear spring water. It was there that we spotted hydrilla in abundance, rising up from the sandy bottom and nearly touching the surface. Excess nitrates in the springs and in most other Florida springs feed and boost the weed's phenomenal growth rate. Regardless, people flock to the springs to cool off and marvel at their beauty, however tarnished. Wekiva Springs on a warm Saturday afternoon is simply an extension of the historic spas and health resorts that once thrived along its high banks, except that more people now flock to the springs than ever before, given the tremendous population explosion in the region during the past three decades. More than 1.3 million people live within 20 miles of the Wekiva River.

After Wekiva Springs, I found myself paddling faster to reach the point where I knew most of the day paddlers would turn around. Two miles downriver, after dodging countless paddle craft, there was almost no one. It was apparent that wildlife knew the zone, too, for their sudden abundance was obvious – more alligators, turtles and wading birds.

We spotted a lone manatee, about 7 feet in length. It surfaced near our boats and followed us a mile or so downriver. Mutual curiosity. The sea cow had likely wintered in Blue Spring and other springs in the area. Now, as the water warmed, it was traveling to points unknown, probably into the myriad of lakes, creeks and other waterways within the St. Johns River watershed, or possibly even to the coast or ocean.

The vast majority of Wekiva paddlers see only a two-mile stretch of river near Wekiva Springs. A smaller number seek to get away and experience a longer paddling trip, usually from Rock Springs to Wekiva Springs or from Wekiva Springs to Katie's Landing, a four- to five-hour journey. Each week,



Clockwise from above: *Mike Jones scoops water from the Wekiva River; While Julia Thompson paddles, Danny Trosset catches a small bass; the blue flag iris is one of seven iris species native to Florida and grows in wetlands; raccoons kept a close watch on the paddlers while they stayed at Otter Camp; a limpkin holds a snail – its primary source of food.*

just a handful embark on an overnight paddle, experiencing the many moods of the river for at least a 24-hour cycle. It's likely that a portion of the day paddlers yearn for something more, especially when they see fully loaded kayaks and canoes glide by with a look of wanderlust on the paddlers' faces.

Once again on a quiet stretch of river, I visualized the steamboats that once chugged up and down the river, carrying tourists and goods all the way to Rock Springs. Of course, the channel had to be dredged and the snags removed during that time. Loggers also denuded the shoreline forests. I'd venture to say the river and its recovering floodplain forest is wilder today than a century ago, with some snag openings only wide enough for a canoe or small john boat to pass by. Plus, there is no longer the random shooting of alligators, birds and other animals from the decks of steamboats. We have evolved as a species to some extent. The river also enjoys some extra protection since it is one of only two designated national wild and scenic rivers in the state of Florida, joining the Loxahatchee. And unlike the Loxahatchee, the entire Wekiva river system is included in the designation.

Since Julia worked with the Seminole County Parks and Recreation Department, we received permission to camp at the county-owned Wilson's Landing Park, where a primitive campsite is being planned for the near future. Our campsite was a perfect spot on a small rise overlooking a wide stretch of river, and because of a steady breeze, the bugs weren't as plentiful as the night before. Danny wanted to try some fishing and he found a bass honey-hole directly in front of the park's boardwalk. They were too small to keep, but Danny was thrilled and we shared in his excitement.

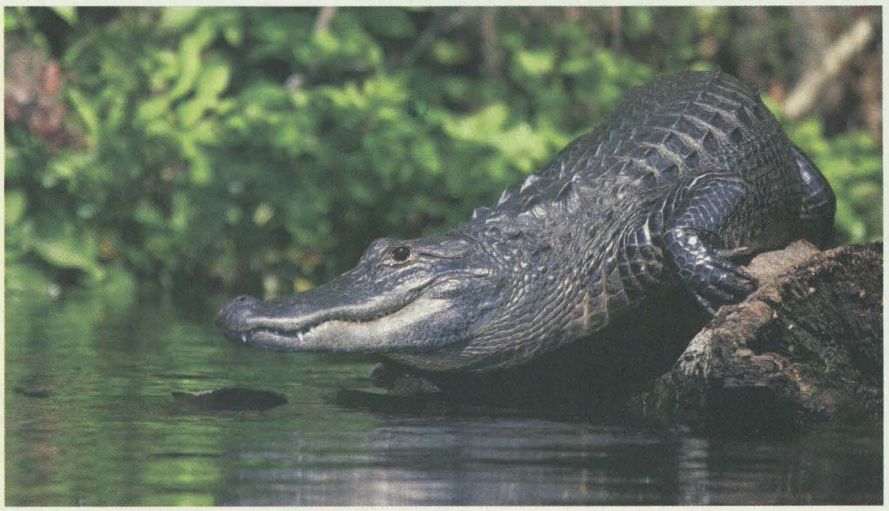
After dark, we made a small fire and took turns reading from Mike's book of Robert Service poems. Most were about the wild Yukon, and they put us in a wilderness mood. How often do people get to sit around a fire and read poetry to each other?

The next morning, we passed several houses just below the Highway 46 bridge, the only bridge crossing on the Wekiva. The river seemed to tame a bit, but it only took a couple of bends before the wildness returned as we entered the Lower Wekiwa River Preserve

State Park and Seminole State Forest, prime bear habitat. So many bears inhabit the area that wildlife underpasses have been built along busy highways where bears are known to cross. Paddlers sometimes spot bears along the Wekiva River, and I once spent a sleepless night camping in the Seminole State Forest while bears continually roamed through my campsite. By morning their scat was everywhere.

We didn't see any bears along the lower Wekiva on this trip, but we did spot numerous alligators and wading birds, including limpkins, and enjoyed watery panoramas and narrow canopied stretches. In all, Florida has protected more than 70,000 acres of the Wekiva River system. Few places in the country have rivers that emerge from a rapidly urbanizing area and almost immediately flow through vast tracts of wilderness. Decades of conservation land buying programs in the state have yielded impressive results.

Wekiva protection efforts began in earnest in 1982 with the establishment of the Friends of the Wekiva River. Six years later, the environmental group spearheaded passage of the Wekiva River Protection Act, which helped to safeguard wetlands, wildlife and habitat, and rural character within a 180-square-mile protection area.



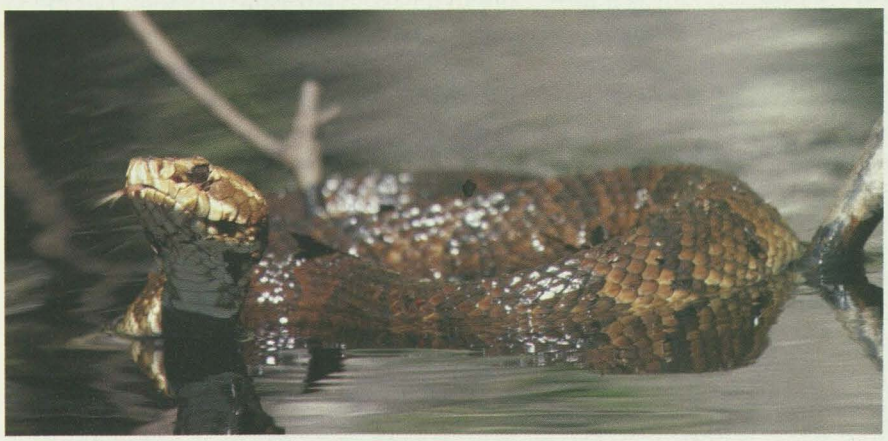
This opened the way for the federal Wild and Scenic River designation in 1998.

We followed the Wekiva to its terminus on the wide St. Johns River. I'd like to say that this famed north-flowing river – designated an American Heritage River by the United States Environmental Protection Agency because of its history and rich ecological values – was a highlight to savor, if only for a mile. But we were too busy dodging boats and their wakes to take it all in. A pontoon boat sped by, followed by a sleek racing boat and a jet ski. These weren't as bad as the big cabin cruiser with the 4-foot wake. I cinched my life vest tighter and wished I had brought my spray skirt. Given the choice, I would have gladly traded this for a couple of hundred canoeists who can't steer.

We weaved to and fro, having to turn our bows into the boat wakes. Fortunately, no one swamped, and we landed safely at the High Banks Landing. I yearned for the peace of the Rock Springs Run and Wekiva River, where alligators and wading birds easily outnumbered people, even on a busy weekend.

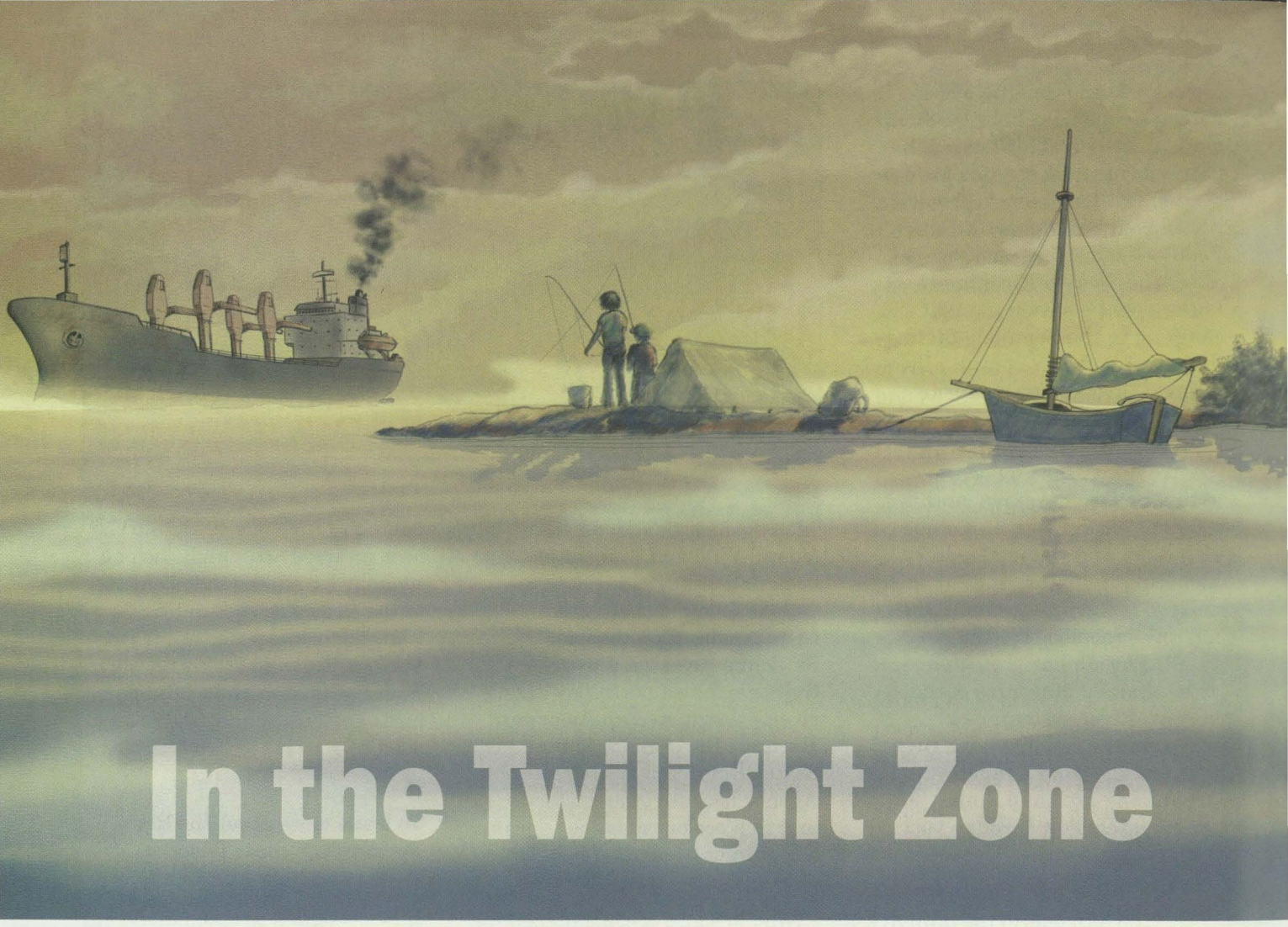
If you go

To learn more about the Rock Springs Run State Reserve, Wekiwa Springs State Park and the Lower Wekiva River Preserve State Park, log on to www.floridastateparks.org. Four primitive campsites for paddlers have been established by the parks. Additionally, primitive camping along the river is available at the privately run Wekiva Falls Resort, 1-888-4-WEKIVA or 352-383-8055. For information about the Wekiva River/Rock Springs Run Paddling Trail, visit www.dep.state.fl.us/gwt/guide/designated_paddle/Wekiva_guide.pdf. FW



Doug Alderson's newest book Encounters with Florida's Endangered Wildlife *has recently been released by the University Press of Florida. To learn more, visit www.dougalderson.net.*

While turtles and alligators (top) are a common sight along the Wekiva, the paddlers also spotted a cottonmouth (left) and a roughly 7-foot manatee (facing page.)



In the Twilight Zone

By Henry Cordova ~ Illustrations by Fritz Seegers

If you go boating in Florida, sooner or later you are going to get caught in a fog. Most of our fogs don't last long, clearing up after a few hours, but there are exceptions. Getting caught out in a real pea-souper is one of the scariest things that can happen to a boater, especially one who is not prepared.

Fortunately, most boats today are equipped with Global Positioning System gear, but even though it can be a great help, it is not a cure-all. GPS can tell you where you are and which way to go, but it cannot keep you from running into things when you are blind. And for those who don't have GPS or who haven't mastered its use or gained complete confidence in it, a knowledge of basic piloting skills is a nice thing to have in your captain's tool. Let me give you an example from the pre-GPS era, when all boaters had to make do with the traditional tools of the mariner – compass and chart. This is a real sea story, and a true one. Trust me.

My friend and I had camped out on a spoil island in Tampa Bay one long weekend in order to do a little fishing from our small sailboat. We had done it before, and were familiar with the area and well prepared, so when a thick fog socked us in we weren't too concerned. But after a while, it became pretty obvious the weather wasn't going to clear, and we realized that fog or no, we had to get back. On our last day on the island, it became obvious we would be going back

in the fog, at night. It was a 6-mile sail back to where our car and trailer were parked, and it was easy to lay out a straight compass course from our camp back to the boat ramp. But that's a long way to go in a small boat, blind, in an area where there are currents and shoals to deal with. And if we missed the narrow entrance to the yacht harbor, there were some ugly rocks and rip-rap nearby that presented a real threat for damage.

Rather than plotting a direct course home, we instead chose to take a detour along the shipping channel. The distance was longer but there were buoys every mile or so along the way, which gave us an opportunity to verify our navigation and make corrections to offset current and leeway. The nav aids were also illuminated and numbered. They would be easier to find in the dark, identify and locate on the chart, and if we missed one altogether we had a good chance of running into the next one. When we reached the point in the channel where we had to make a turn to go home, we would only have a short stretch in the fog to find the harbor entrance. If we missed it, we would be traveling parallel to the shore, not perpendicular to it. We would have a better chance of hearing the surf on the rocks, and we knew the coast there well enough that we would soon know if our destination was to our left or right.

The disadvantage of this strategy was that we were more likely to run into harbor traffic in the channel. It's hard to sneak up on a sailboat, but a noisy, fast powerboat up on a plane is even less aware of its surroundings than we would be. We were aware of this risk, evaluated it and made the decision it was worth taking, considering the circumstances. Although our boat was too small to require running lights, we did carry a spotlight and whistle aboard,

and we resolved to keep a sharp lookout and listen carefully. Besides, no one would be crazy enough to be zipping around the bay on a foggy night... right?

Everything went according to plan. The seas were gentle, the wind favorable and we sailed up the channel, buoy-hopping our way down the line. As each marker came alongside, we noted its number, its position on the chart and the distance traveled in the elapsed time. Between landmarks, we checked our speed by dropping bits of paper off our bows and timing them as they drifted past our stern. An occasional sounding with the lead line told us whether or not we were in the deep water of the channel. We had an excellent idea of our progress, both course and speed, and were able to determine the error in our estimates due to our frequent fixes as we passed the channel markers. And then we heard it.

Off in the distance, in the cold and dark, we heard the unmistakable sound of a big one-lung diesel pushing a heavy displacement hull. Something big

was headed our way. It's hard to tell where or how far away a sound is in a fog, and we weren't even sure if it was in the channel. But there was no doubt it was out there, and it was getting closer. We shone the light on our sail, taking care not to ruin our night vision by staring at it and started blasting our whistle. We made sure our sails were trimmed for maximum speed, and started edging as best we could to the right hand side of the channel.

Then we saw it, a dark shape coming toward us, both red and green running lights simultaneously visible, with a bone in her teeth. The boats were on a collision course. The diesel wasn't in the channel, she was crossing it at right angles. We gave a long blast on the whistle, and flashed our light about, taking care not to blind her helmsman. In spite of her size, she seemed to draft very little. For a while it was not clear whether the mystery ship saw us or not, but soon she maneuvered and crossed astern of us, less than a 100 feet away. We got a good look at her as she slipped past us.

It was a Dragon Ship. A Viking war galley, complete with stem and stern gargoyles, brightly colored shields on her bulwarks, a tall mast with a furled sail and a steering oar shipped on her starboard side. On her deck, dim figures moved about, some waved at us as the ghost ship passed. We sat and stared in dumbfounded amazement, since this could not be happening. The fact she was equipped with an engine and electric lights did not immediately register with us. Of course, we soon realized we had not been witnesses to a time travel event, but for a moment, we were totally flabbergasted. Even so, what could a motorized, electrified Viking long ship be doing lost in the fog in Tampa Bay?

We eventually got our own boat home safely, without incident, and with a sea story that we could repeat (with embellishments) for the rest of our lives. A few days later we read in the newspaper that a group of Norwegian Sea Scouts had sailed a replica Viking ship across the Atlantic and were touring the Eastern Seaboard and Gulf Coast on a goodwill cruise. FW

FWC wraps up 2-day meeting near Tallahassee

The FWC tackled numerous important issues during its meeting April 28 and 29 at the Florida Public Safety Institute, northwest of Tallahassee.

The Commission approved draft rules that would move the current list of reptiles in the reptiles of concern category and reclassify them as conditional species. The proposed rules would ban personal possession of these reptiles. Final rule-approval was to be considered in June.

Final rule amendments were approved in state manatee-protection zones in Sarasota County, which increase the size of the speed-zone area. Commissioners also advanced draft rules for the FWC's approval process for local boating ordinances and uniform marker requirements. They approved technical corrections to the guidelines for two Boating and Waterways grant programs.

The Commission approved draft rules related to the taking of wildlife on airport property in emergency situations to ensure the safety of aircraft and human life.

The Commission approved a rule amendment that will make the recreational harvest season for red snapper in Gulf of Mexico state waters consistent with this year's open season in Gulf federal waters. This open harvest season will occur from June 1 through July 23 this year.

In addition, the Commission approved new rules that will maintain the current number of commercial ballyhoo lampara net endorsements, allow all ballyhoo endorsement holders to sell their endorsement to other commercial fishers from July 1 - March 31 each year, limit any one entity from holding more than two ballyhoo endorsements at any one time, prohibit leasing of the endorsement, and allow only one endorsement per saltwater products license and one saltwater products license to be associated with a single endorsement. These rules took effect July 1.

The FWC also approved a rule that will allow oyster harvesters to stow hand tongs on their vessels from sunset to sunrise so they can transit to oyster bars before dawn and begin harvesting oysters at sunrise.

The full agenda is available online at MyFWC.com/Commission.

FWC recognizes captain, artist for outstanding work

Capt. Alan Richard dedicated his career of more than 32 years to boating safety. Because of his many accomplishments, the FWC recognized him at the beginning of its two-day meeting in April.

TIM DONOVAN

Capt. Alan Richard

The FWC's Richard spent so much time educating himself, the public and other officers about boating laws and safety that it's a wonder he also was able to devote time to his wife, children, civic activities and hobbies, which include recreational boating, snorkeling and scuba diving.

Before Richard retired in March, he worked in the FWC General Counsel's office as an attorney representing the agency's law-enforcement efforts. He was often behind the scenes drafting rules and regulations, laying groundwork for safer boating experiences. He also spent time explaining it all to the public and to candidates at training academies.

His career started in 1977 as a law enforcement officer in Dade and Broward counties. While working as a lieutenant and then a captain, he earned a juris doctorate with highest honors in 1994 from the Florida State University College of Law and became the Boating and Waterway Management Coordinator for the state of Florida in 1999.

Besides being a staff attorney for the FWC, throughout his career Richard has been an instructor. He still teaches law at FSU and classes at the Institute of Police Technology and Management at the University of North Florida. Richard also serves on statewide professional committees and advisory councils, and is a member of the Boating Advisory Council. The list of presentations and training he provided covers several pages of his curriculum vitae.

The agency also recognized artist Brian Chamberlain with a plaque for his outstanding, real-to-life wildlife artwork, which helps people gain a greater appreciation of Florida's rich wildlife heritage.

"As a youth, he participated in many out-of-doors activities, and he caught the fever like all of us," said Greg Holder, FWC assistant executive director.

TIM DONOVAN

Artist Brian Chamberlain (center) is congratulated by (left to right) commissioners Kenneth Wright, Kathy Barco, Brian Yablonski, Chairman Rodney Barreto, Vice Chairman Richard Corbett, commissioners Dwight Stephenson and Ron Bergeron.

Countless museum-goers have seen Chamberlain's murals and sculptures. The artist grew up in Fort Green, near Wauchula, where he began drawing at age 3. To enhance his skills, he received a Bachelor of Science degree in wildlife ecology and conservation at the University of Florida. He painted murals and created sculptures for habitats while working with the Florida Museum of Natural History in Gainesville.

While at home near Monticello with his wife and two children, Chamberlain creates more wildlife paintings and sculptures, which grace many people's residences.

FWC amends captive wildlife rules

The FWC agreed Apr. 28 on amendments regarding captive wildlife rules, which took effect July 1. Capt. John West of the FWC's Captive Wildlife section led the final public hearing on rule changes proposed at the Commission meeting in February.

Under the new rules, all shipments of live wildlife that are sent via interstate or intrastate commerce will have to be labeled with the complete name and address of the sender and receiver, as well as the numbers and species of animals contained in the shipment.

Another aspect of the changes is that licensees authorized to exhibit or sell Class III wildlife, who are considered to be "hobbyists," will no longer have to demonstrate sustained consistent commercial activity.

"This change allows 'hobbyists' to possess wildlife primarily for their personal enjoyment," West said. "But they can occasionally exhibit or sell their wildlife without having to demonstrate commercial activity."

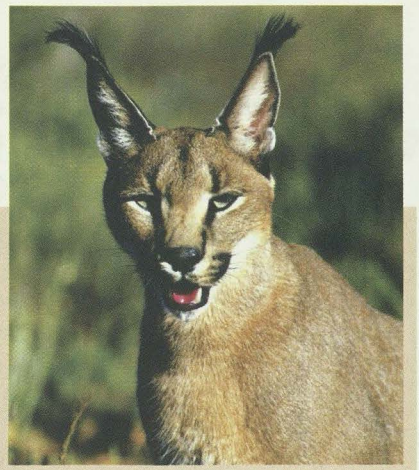
A final aspect of the amendments allows county emergency managers to review the "Captive Wildlife Critical Incident/Disaster Plan" that possessors of Class I or Class II wildlife complete.

"This change addresses concerns of both the counties and the licensees," West said. "It will provide county emergency managers access to 'Part B' of the plan, while protecting licensees' sensitive facility information from becoming public record."

Several members of the Humane Society of the United States and the Florida reptile industry spoke, applauding the FWC's efforts and encouraging rapid action on these issues.

Also discussed were changes regarding local commercial zoning and building codes. Over the past several months, FWC employees worked with representatives from the Florida Association of Counties, local government and other stakeholders on possible changes to county-related captive wildlife rules. Commissioners requested that staff continue working with counties on these issues. When the Commission meets again in September, it will address whether new licensees who possess Class I or Class II wildlife for commercial purposes must meet local commercial zoning and building codes.

More information about the FWC's captive wildlife regulations is available at MyFWC.com/Rules; click on "Captive Wildlife."



FILE PHOTO

Caracal, derived from a Turkish word meaning "black eared," are the largest of the African small cats.

FWC seeks to connect kids with nature at Capitol event

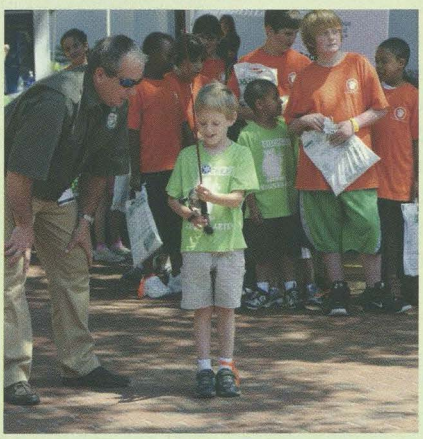
The courtyard between the old and new Florida capitols was a showcase of the natural wonders of Florida on April 27. The theme was "Creating the next generation that cares."

The FWC hosted a variety of interactive displays to inspire youngsters to care about the natural character of Florida and enjoy the adventures that nature offers them.

One display featured a touch tank of marine life; another offered kids a chance to become a bear for a little while and search for berries and bugs to eat. Participants also had a chance to learn how to cast a fishing line.

Kids learned the names of the bird species that live in Florida or migrate through the state every year and participated in an activity that will help them discover what it's like to be a bird at migration time.

Youngsters saw a wild baby alligator up close with an expert standing by to answer their questions, such as, "Can an alligator really outrun a racehorse like my brother says?"

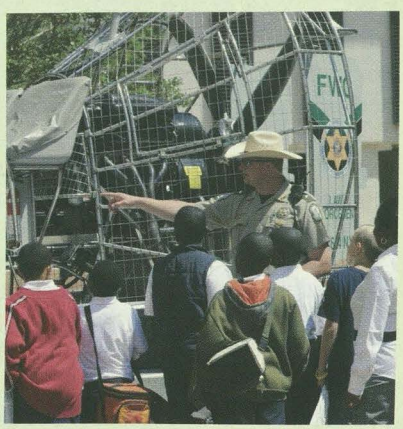


TIM LEWIS

The FWC's Division of Law Enforcement displayed the vehicles and vessels it takes to patrol, protect and preserve Florida's woods and waters, and the division's K-9 team demonstrated how it sniffs out lawbreakers and tracks down lost adventurers.

Increasingly, today's children disconnect from nature. They devote nearly eight hours a day to entertainment media and media multi-tasking, while the number of youngsters who spend time in traditional outdoor activities continues to decline dramatically.

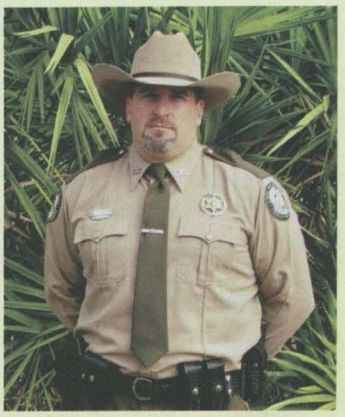
Organizers hoped that through providing information and interactive experiences to youths, the project will motivate them to care about protecting the legacy of magnificent natural resources that are unique to Florida and that fuel the state's economy.



TIM LEWIS

FWC **Update**

FWC names Rich Wilcox its Officer of the Year



FWC FILES

FWC law enforcement officers are an elite group. They hold positions many can only dream about. In fact, only a few prospects make the cut to protect the state's fish and wildlife resources.

To be named the top cop among this select group is an honor even fewer have known. Officer Richard "Rich" Wilcox, of the agency's Northeast Region, joined this elite group when the FWC named him Law Enforcement Officer of the Year for 2010.

Wilcox, 40, is a five-year veteran of the FWC, with a reputation as a tenacious, skilled officer whom outlaws prefer to avoid. One landowner in Wilcox's patrol area described him this way: "If he is on your trail, you might as well give up, because he won't quit until he catches you."

The same skill and tenacity that make Wilcox so good at cracking fish and wildlife cases are why a Putnam County woman who was missing for a week last September is alive today. Search-and-rescue personnel had nearly given up trying to find the 21-year-old woman when Wilcox spotted a key piece of evidence, which turned out to be her sweatshirt. *(Details of this rescue were printed in the May/June issue.)*

For that, he received the agency's prestigious "Lifesaving Award." He was happy about the honor, but for Wilcox it's less about him and more about the teamwork this job takes. In fact, when he learned he had been named this year's officer of the year, he said, "I have to get out now and shake a lot of hands, because I've got a lot of officers to thank for this. It is a team effort."

Wilcox began his career with the FWC in 2005, after serving in the Marine Corps. First assigned to the agency's Southwest Region, he now works in St. Johns County in the Northeast Region. Wilcox built a variety of criminal cases in one year that might take others an entire career to accomplish, including taking deer at night, trespassing, possessing gopher tortoises, possessing oversized redfish, hunting dove over bait, and commercial harvest of redfish sold at local restaurants.

Lt. Ben Allen, Wilcox's supervisor, pointed out that selecting an officer of the year would be simple if numbers alone could measure it. That is not the case, though.

"What makes one officer rise even higher than the other exceptional candidates are the intrinsic qualities," Allen said. "Though these qualities are hard to define, they are evident in the dedication Officer Wilcox displays. Each and every day he goes to work and truly tries to make a difference."

In January 2009, even though he was on annual leave for the birth of his fourth child, Wilcox acted quickly on a tip about night-hunting poachers killing a spotted fawn. Because of his availability, quick action and superb training, Wilcox brought down a ring of illegal hunters who were harvesting deer to sell the meat. After a three-month investigation, he arrested eight suspects on 88 violations.

In December 2009, Wilcox was involved in another rescue effort. A deer hunter had fallen out of his tree stand and became entangled by his legs, hanging upside down. Wilcox's quick thinking and familiarity with the area helped save the man's life. He led rescuers to the area and used another nearby tree stand to climb the tree and rescue the man. The St. Johns County Fire Rescue Department is now using a videotape of Wilcox's rescue as a training aid.

Wilcox clearly stood out to the selection committee, but he is not alone in his excellent qualities. This year's nominees are an impressive testament to the quality of the FWC's Division of Law Enforcement. They include Steve Golden, Jason Cooke, Sandra Blackburn, Arnold McMillion and Michael Naujoks.

FWC gives more protection to bonefish

The FWC approved rule amendments on April 29 to provide more protection for bonefish, a premier saltwater game fish in Florida.

"These rules bolster our management measures to preserve bonefish so that Florida anglers and visitors can continue to enjoy fishing for this terrific marine game fish," said FWC Chairman Rodney Barreto.

The new rules include all bonefish species in the FWC's bonefish management rules to help ensure that all bonefish in Florida waters are protected, extend FWC bonefish regulations into adjacent federal waters to aid enforcement and enhance bonefish protection, and require that bonefish be landed in whole condition to help officers in the field identify bonefish and aid in enforcement of bag and size limits.

DIANE ROME PEEBLES

It has been illegal to commercially harvest and sell bonefish in Florida since 1988, and a daily recreational bag limit of one bonefish 18 inches or greater in fork length applies. Bonefish may be taken by hook and line only.

The new bonefish rules took effect on July 1, and the FWC will continue to work with stakeholders to further examine the concept of making bonefish a catch-and-release fishery only.

More information about bonefish is available online in the Saltwater area of MyFWC.com/Fishing.

Send us your best shot!

2010 *Florida Wildlife* Photo Contest

Florida Wildlife Magazine is pleased to announce its 2010 photo contest. Winning entries will be published in the January/February 2011 issue of *Florida Wildlife* and posted on the magazine's website.

Categories

- **Bird watching.** Birds living in or visiting Florida.
- **Living wild.** Any wild animals, other than birds, pictured in a Florida habitat. This includes mammals, reptiles, amphibians, insects and fish.
- **Natural scenes.** Where Florida's animals live.

Divisions

- **Amateur.** Photographers who have not received payment for photographs.
- **Professional/Semi-professional.** Photographers who have received payment for photographs.

Prizes

Grand prize: $300 awarded for best overall photograph.

First place winners in each category will be awarded $125.

Second place winners will receive $100.

Third place winners will receive $75.

Awards of Merit may be given. Winners will receive $50.

Rules:

- Wildlife pictured must be live – pictures of mounted wildlife are not eligible. Images of domestic animals (dogs, cats, cattle, etc.) are not eligible.
- Images must be taken within the state of Florida.
- All entries must be received by 5 p.m. Friday, Aug. 13, 2010. Entries received after this date will be automatically disqualified and returned to the entrant.
- Employees of the FWC and their immediate families are not eligible.
- Photographs previously submitted to or published by *Florida Wildlife* Magazine or any other FWC publications are not eligible.
- One-time publication rights to each photograph must be available.
- All entries will be judged by *Florida Wildlife* Magazine staff and other employees of the FWC. The decisions of the judges are final.
- The judges reserve the right to decide whether entries in a category merit three awards and to decide under which category a picture will be judged. Three prizes may not be awarded in all categories.
- Winning entries posted on the website may have watermarks added.

Entry procedures:

- No more than 20 entries will be accepted from a single entrant.
- If the photographs are to be returned to the photographer, a self-addressed mailer with sufficient postage for return of materials via U.S. mail must be included with entry.
- Entries must contain only photo contest material. No other correspondence should be included.
- A single, legible, letter size (8 1/2" x 11") log must accompany each photographer's entry. A pdf log may be downloaded from the magazine's website (www.FloridaWildlifeMagazine.com) but is not required. The log sheet must contain the following information:

  Name of photographer
  Mailing address
  Telephone number, with area code
  E-mail address
  Category
  Subject of photo
  Where photo was taken
  When photo was taken

Mail entries to:

Florida Wildlife Photo Contest
620 South Meridian Street,
Tallahassee, FL 32399-1600

- Entries may be submitted as:
  Prints. Approximately 8"x10" and not framed or matted. Image must be as large as paper size will allow. 5"x7" or smaller will not judged.

  Digital images. Digital images may be submitted on a CD. For tracking purposes, a print or laser copy of each digital image should be submitted. This may be a letter-size contact sheet(s) up to full-page printouts. Images on CD will be judged, not the printout.
- The photographer's name and address must appear and be legible on the back of each print and on the CD. The photographer's name or other information may not appear on the front of any print.
- Manipulation of images should be kept at a minimum (such as saturation, contrast, dodging, eliminating dust spots, etc.). Images in which content has been eliminated, added, rearranged, etc. will not be accepted.
- Entries will be returned via U.S. mail beginning in January 2011.
- Entrant's information (address, phone, e-mail) will not be shared or used by the FWC for any reason other than communicating with entrant regarding this contest.

Man-made wetlands are nature's nursery

By Charlie and Charlotte Corbeil

Photographs by Charlie Corbeil

The horizon brightens as a slight gold tint of predawn brushes the sky. I arrive for my routine morning walk. The sound of my boots scuffing the coarse dirt road usually alarms some wild animal. Today, it is an alligator, which plunges into the shallow water. The booming splash heightens the morning chatter of nearby birds. Inadvertently, the creatures welcome me. With camera in hand, I join them in savoring another day in man-made wetlands.

Although Florida takes pride in its natural wetlands where animals prosper, I can attest that man-made habitats are equally outstanding. Such a site was proposed in Viera in Brevard County 10 years ago. Visionaries planned polishing ponds to help with water purification as an added step to the water treatment process. They also hoped to create wetlands especially for waterfowl.

The Ritch Grissom Memorial Wetlands demonstrate the success of this undertaking.

Above: *A view of the Ritch Grissom Memorial Wetlands.* ***Facing page:*** *A black-bellied whistling duck family and chick.*

Defined by simple dirt roads and grassy berms, the glistening ponds are mechanically connected to direct and controlled water flow. In these waters, nutrient-enhanced effluent from the primary treatment process supports the food chain. Vegetation characteristic of natural wetlands, including trees, grasses, rushes and aquatic species, supplies nourishment, cover and attractive surroundings. Due to precise design, flora and fauna thrive. The synergy of water treatment and wetlands transcends the county's expectations.

Photographers, bird watchers and tourists frequent this unique haven. The animal activity is constant. Some sightings spellbind me. Recently, I watched a feral hog nurse her litter of 10 multi-colored piglets while a male lingered at a distance. On another occasion, a sleek otter with two pups frolicked in the water, while nearby, a coiled water moccasin sunned on the open bank. But a startled bobcat that climbed onto the observation deck awed me the most.

These man-made wetlands are a perfect incubator for wildlife – nature's nursery. During the mating season, my quest was to photograph newborn water birds. I spent hours observing several species mating, nesting, hatching, feeding and fledging. At times, only the slightest movement of the rushes warned me of a bird foraging for food or seeking shelter.

Time, patience and awareness are vital.

This year I focused on five species:

The black-bellied whistling duck

Named because of their whistles in flight, a male and his mate nested in a shallow bowl of grass on an island. They shared incubation and brooding. The buff-white eggs were vulnerable to a crested caracara that lived nearby in the fronds of cabbage palms. Soon after the ducks nested, the predator fled the duck nest with an egg in its beak. A large raccoon periodically waited nearby for an equal opportunity. When 15 chicks hatched in 27 days,

heads up briefly. Ten days later they left their nest. I found one juvenile above the water clutching the rushes as it searched for small fish, frogs, and insects. The chicks fledged 25 days after hatching.

The great blue heron

The male attracted his mate to the nest site by a "stretch display" – pointing his bill upwards and vocalizing. The female displayed her neck and chest plumes as she received sticks and twigs gathered by the male. In the process of passing and receiving nesting material, they preened each other's feathers (allopreening). During these activities, the female built the nest, and several days later, she laid three pale-blue eggs.

they were fluffy black and yellow – often referred to as "bumblebees." Within a day, the brood entered the water. The mother led them to familiar feeding spots. She turned over lily pads and stems to expose insects. The number of chicks quickly declined. None remained after three days, possibly predated upon by alligators and soft-shelled turtles.

Above: *Great blue heron and chicks.* ***Below:*** *Juvenile least bittern.* ***Facing page, top:*** *Sandhill crane and chicks.* ***Bottom:*** *A limpkin feeds its chick.*

The least bittern

A bland-colored marsh bird nested with his mate in a platform of dense green and dried aquatic vegetation, covered with tall bull rush. The pair and nest were hard to detect. The female laid three pale-green eggs. Two eggs hatched in about 17 days. The chicks emerged covered in down of rusty brown on the back and whitish underneath. Unsteady, they sat and held their

The pair shared incubation at intervals of more than six hours. Two gray down-covered nestlings hatched in 28 days. The unhatched egg disappeared the next day. The following week the female performed most of the brooding. Both adults regurgitated fish and vegetation directly into the bills of the young. Two months after hatching, the chicks fledged.

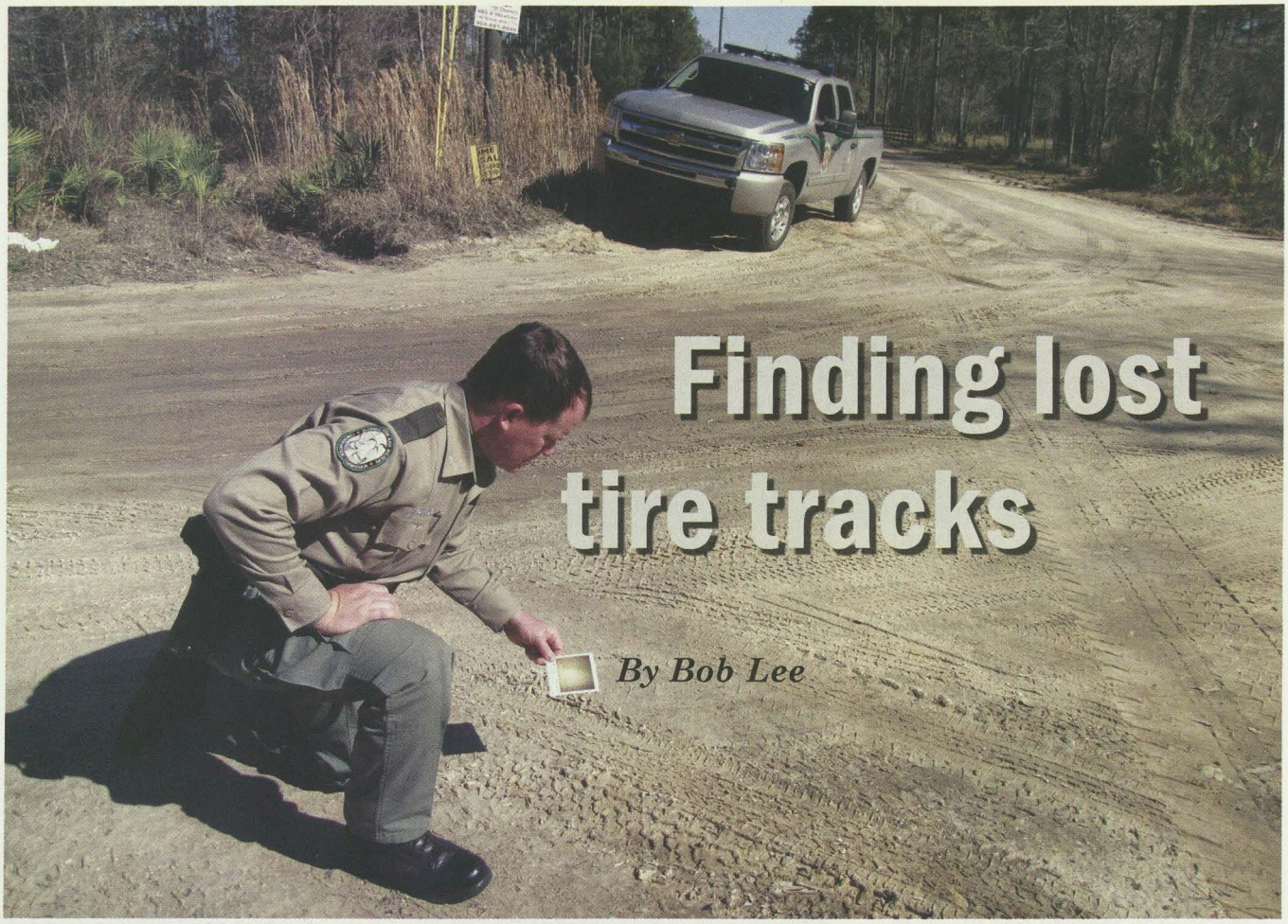
The sandhill crane

The pair chose to settle in the open marsh in shallow water. They constructed a nest of mud and plant life — pickerel weed and other aquatic grasses. They built the nest higher after the rain raised the pond's water level. Mainly tended by the female, the nest boasted two large pale-brown eggs, marked with irregular darker-brown blotches. Four weeks later, two yellow down-covered chicks emerged, a day apart. They walked within hours of hatching. The next day the newborns rummaged for food, such as insects and small aquatic life. Within a week they abandoned the nest and roamed with their parents, who they would stay with most of their first year.

The limpkin

Their nest was a platform of sticks, vines, leaves and grasses, which provided a shallow-water shelter. Tree-nesting behavior, an alternate practice for this species, was not evident in these wetlands. Five brown, down-covered chicks hatched from grayish-white eggs after 26 days. The juveniles actively ran the day after hatching. Often, the family walked along the water's edge and combed the mud for native apple snails, their primary nourishment. After finding the freshwater mollusks, these specialized feeders removed the food from the shells with their long bills which serve as tweezers. Within three months, the young fledged.

The nursery season ends when the last hatchling fledges, but the life cycle continues throughout the year. Some pairs stay together, others select new mates. All are visited by fall and spring migrations that may include rare species for this area. These events add to the mystery and excitement of the odysseys at the wetlands. FW



Finding lost tire tracks

By Bob Lee

BOB LEE

How FWC officers use vehicle tracking skills to catch poachers

During the 1800s, bank robbers in the Wild West galloped out of town on horseback, whooping it up as they vanished over the horizon in a cloud of dust. A mounted sheriff's posse eagerly pursued these villains, tracking them through streams, across mountains and dry prairies. In the end, they always caught their man. At least that's how I remember it as a kid growing up in the late 50s, watching B-grade Westerns on a three-channel television.

Today, of course, horse hooves have long since been traded in for automobile tires. Most criminals and poachers travel on four pieces of round rubber wherever they go. Florida Fish and Wildlife Conservation Commission officers tackle vehicle tracking the same way a posse worked a century or more ago. Some folks may be surprised by this, considering all of the tools and gadgets available for modern-day crime solving. But in the right set of circumstances – on unpaved roads – this skill has proven very useful in catching unsuspecting poachers.

When most people think of tire track evidence, their first thought is probably a flashback to the latest television episode of Crime Scene Investigators, where the actors reach flawless deductions based on minute bits of evidence. This, of course, makes for a good story, but what happens in reality is often more muddled.

A continuous set of tire tracks leaving the scene of a crime is easy to follow. The dots

The "four-corner-method" of checking a dirt road intersection is a good way to find a suspect's tire tracks if none are visible on the straight-a-ways. Officer Eric Meade likes to use a photo of the suspect's tire track for comparison. Often, only a sliver of the suspect's tire tread pattern will be discernable.

line up nicely enough that even a first-grader could cipher out the question of where the vehicle went next. But what if the tire tracks are partially erased from traffic or appear to be entirely lost? The dots now become much harder to match up.

As a 30-year FWC veteran and former patrol supervisor for officers in Putnam, St. Johns and Flagler counties in Northeast Florida, I've had ample opportunity to practice vehicle tracking. Putnam County alone has more than 1,100 miles of dirt roads. This area has historically been a target-rich environment for poachers, providing a virtual vehicle tracking laboratory for FWC officers honing their skills.

One of the more interesting tire tracking techniques is following a seemingly lost tire track. We call it the four-corner method. All it takes is time, patience and a little luck.

Catching a deer poacher

Putnam County is scattered with dozens of sparsely developed subdivisions sold to unsuspecting northerners in the early 70s. Many of the people who originally bought lots are still waiting for them to appreciate; resulting in thousands of properties that have sat idle for decades. These subdivisions, when surrounded by state wildlife management areas and private hunt clubs, create a poacher's paradise.

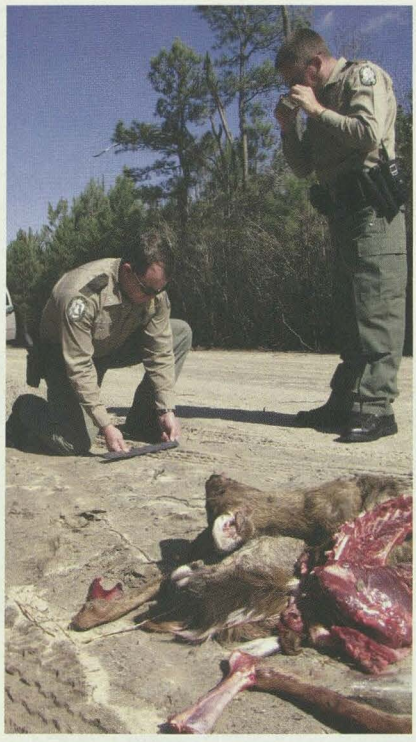
So it was on a chilly Saturday afternoon during general hunting season that Officer Eric Meade and I ended up in one of these subdivisions. The locals refer to it as the "Estates" – a 50,000-acre sprawl of dirt roads, poor soil and tired mobile homes.

We'd received information of a possible illegal deer kill earlier that morning and had just arrived at the scene – a dirt road next to vacant land – to check it out. We had little to go on, except an orange Ford Ranger pickup truck had been seen parked along the road and a gunshot heard around 8 a.m. The truck disappeared shortly after the gunshot. If a deer had been killed illegally, it would have been a buck with antlers less than 5 inches in length or a doe deer.

Eric and I found the tire tracks of the truck, where it had been driven off the main road, then looped back onto it again. In about the middle of this circle, where the tracks came closest to the tree line, were a series of wave patterns cast up by the right rear tire where it had slipped in the dirt. This marked the spot where the truck had been parked before it started moving forward again.

The story left on the ground was fairly straight forward. Two people had gotten out of the truck and walked into the woods, one from the driver's side and one from the passenger's side. Coming out of the woods, they strode up to the tailgate together, before getting back in the cab. One of the foot tracks was smaller than the other.

We followed the foot tracks into the woods and stopped when we heard a familiar sound. The buzzing of blowflies is very distinctive and well-known to conservation officers working a blood trail. Casting about with



BOB LEE

Above: *Officers patrolling Putnam County's back roads often find deer carcasses dumped out during hunting season. Officer Eric Meade (left) and Lt. Ben Allen photograph a tire track near the butchered remains of two doe deer. Tire tracks can be the link to suspects of a wildlife crime.* ***Below:*** *A wave pattern results from tire slippage in the dirt. To determine the direction in which the vehicle was driven, draw an imaginary line from the crown/peak of the wave following the shallow slope as it falls away. The vehicle leaving this track went left. FWC officers often use this technique to follow suspects.*

BOB LEE

BOB LEE

Above: *One drop of water from a vehicle's air conditioner can indicate the direction of movement. The vehicle leaving this evidence went left, the same direction the water droplet splattered upon hitting the ground.* ***Below:*** *FWC Officers can even detect which direction a vehicle went by colorations in grass. Shine indicates the vehicle was moving away.* ***Bottom:*** *Faint dark stripes indicate it moved toward the camera.*

our eyes, we finally saw them clustered in and around some dried oak leaves. Bending down for a closer look, we saw a spot of clotted blood mixed with a few deer hairs. Just beyond the blood was a trail of turned-over leaves – creating a dark shadow line – where a deer had been dragged out of the woods. Curiously, the drag marks ended right in front of us.

"What do you think?" I asked.

"They picked the deer up right here," replied Eric, pointing at the ground where the leaf litter met the sandy road shoulder, "and carried it to their truck so they wouldn't leave any drag sign for someone driving by to see."

"I agree. Most likely they killed an illegal deer. Let's see what we've got back in the woods."

BOB LEE

BOB LEE

Eric took point, back-tracking the drag marks to a kill-site in a small clearing, where the deer had struggled; flailing the ground and shredding the low cover. Splotches of bright-red blood and loose brown hair were scattered about the scuffed-up area. Twenty yards away stood a homemade ladder stand – a "leaner" we call them – made from scrap lumber. The plywood seat sat 12 feet off the ground, well above the eye level of a feeding deer. Lying in the leaves under the stand was a spent, No. 1 buckshot, 12-gauge shotgun shell. Eric picked up the dark-green hull with a stick and gave it a sniff, nodding at me with a smile. It had been freshly fired.

He pulled out a brown paper evidence bag, dropped the shell inside and stuffed it into his cargo pants pocket.

We returned to the truck, where we measured and photographed the tire and foot tracks.

The wave pattern left by the truck's rear tire slippage showed us the direction it had last gone. Eric and I followed these tracks, since they were the freshest. We pulled onto the main road and immediately ran into a problem – our suspects' tire tracks had been erased by passing motorists. We motored on to the next intersection where we stopped and got out. Using the photograph of the tire track we had taken, we carefully examined all four corners of the intersection trying to spot just a piece of the truck's tire track. The corner of an intersection is more likely to retain a partial track, because it receives less traffic than the main roads.

Not finding anything, we continued on to the second and then to the third intersection, where we found a 2-by-3-inch section of the truck's tire tread pattern. We made the turn just as the truck had done, repeating this process for more than two hours as we weaved through the

subdivision from one four-way junction to the next – a lot like following a trail of bread crumbs. Finally, the tire tracks led us to a driveway that turned into a mobile home. Parked in the front yard was an orange Ford Ranger pickup truck. A camouflaged jacket lay on top of the cab and a white cooler with streaks of dried red blood sat on the ground near the truck's tailgate.

A shirtless, tattooed man in his 40s pushed the screen door to the trailer open and came over to greet us. Metal jewelry hung from his face in the oddest of places. I tried not to stare, but I couldn't help myself. I wondered if it hurt.

Indeed, he was a rough looking character. But looks can be deceiving. He offered up an enthusiastic handshake to Eric and me without hesitation, asking, "What can I help you guys with?

"Listen," I said. "I'm going to be straight up with you. You and I both know why we're here. A deer was killed early today and put in this pickup truck," I jabbed a finger toward the rusting hulk for proper theatrics, "and brought back here where it was obviously butchered, by the look of that bloody cooler. Just tell us the truth about what happened."

"If I tell you what happened, will I go to jail?"

"No, not for an illegal deer."

"My 12-year-old son killed a spike buck with 2-inch horns. He was sitting next to me in the tree stand this morning when he shot it. I guess I should have told him not to shoot."

"Here's what we're going to do. Your son will get a warning and you'll get a citation for a mandatory court appearance since you were responsible for his conduct. We're also going to seize the shotgun and the deer meat."

"Fine."

Eric and I finished up our administrative tasks, and loaded up a Remington 870, 12-gauge shotgun, along with the three white plastic garbage bags filled with butchered deer meat into our patrol truck.

I opened the passenger door to get in, when the tattooed man walked up and asked, "Hey, how in the heck did you find me anyway?"

"We followed your tire tracks."

"No way! Not with all the cars on these roads. You all just got lucky."

"Luck it is then. Have a nice day." I quietly shut the door and gave him a little wave, while Eric cranked the truck and drove us on down his driveway.

I turned to Eric and asked, "So what do you think?"

"He'll be scratching his head for awhile trying to figure this one out."

"Exactly, keep them guessing. That's what it's all about." FW

CHRIS CHRISTIAN

BOB LEE

Above: *FWC Officer Eric Meade, left, and the author (before his retirement in 2007) examine tire tracks in west Putnam County.* ***Below:*** *A vehicle passing through a puddle of water splashes the water forward so it washes out the exiting tire tracks. Note how the entry tracks on the far side of the hole are crisp and clean.*

The Okaloosa darter

FWC FILES

a success story as rare as the species itself

By Patricia Behnke

Rare describes the Okaloosa darter – a 3-inch fish on the brink of extinction until fisheries managers embarked on a campaign to save it. What occurred next is as rare as the fish and its habitat.

The story of the Okaloosa darter begins with its rare and limited habitat located in Northwest Florida. The fish occurs in two bayous of the Choctawhatchee Bay, in only six streams. The majority of those streams and their watershed occur on Eglin Air Force Base, the largest non-nuclear weapons testing base in North America. The rest of its habitat lies within the cities of Niceville and Valparaiso. It's a rare habitat for sure. But it becomes even more complicated because the six streams in question have been altered over the years, fragmenting and making the habitat and very existence of the Okaloosa darter so rare that it almost disappeared forever.

The fish was listed under the federal Endangered Species Act in 1973, the same year the Act became the law of the land for threatened

Above: *The Okaloosa darter (Etheostoma okaloosae) is a small perch-like fish occurring in only six clear stream systems in Walton and Okaloosa counties in Northwest Florida.* ***Facing page, top to bottom:*** *The culverts under the railroad bed at Little Rocky Creek effectively created a barrier between two populations of Okaloosa darter; the restoration began at Little Rocky Creek by removing the railroad bed and creating a level stream; the upper section of Little Rocky Creek, before the restoration, provided ideal habitat for Okaloosa darters.*

wildlife. Now 37 years later, the U.S. Fish and Wildlife Service has announced its decision to change the Okaloosa darter's status from endangered to threatened.

"The Okaloosa darter could be the poster child for endangered fish species in Florida," said FWC biologist Michael Hill. "It's a beautiful and rare thing to have everything come together as it did. With AHRE (Aquatic Habitat Restoration and Enhancement) funding, the FWC was able to help reconnect and improve the darter habitat and stabilize the species population."

FWC's AHRE funding has been an important part of habitat restoration around the state, from smaller areas, such as the one that supports the Okaloosa darter to larger projects, such as work in 2007-08 to restore 436 acres of habitat on Lake Okeechobee. That $2.8 million project removed organic sediment to enhance the habitat for waterfowl, wading birds and sport fisheries on the second largest freshwater lake in the country. The project in Northwest Florida provided the FWC with the same opportunity.

The work on the darter habitat began when the USFWS developed the Okaloosa Darter Recovery Plan in 1981 and began doing what the experts knew needed to be done – recover the habitat so the Okaloosa darter had a place to live.

MICHAEL HILL, FWC

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Approximately 98 percent of the Okaloosa darter's present range is within the boundaries of Eglin Air Force Base in Northwest Florida.

MICHAEL HILL, FWC

CHRIS METCALF, USFWS

Top to bottom: *Mill Creek was dammed nearly 40 years ago to create a water hazard on Eglin Air Force Base golf course, effectively cutting off Okaloosa darter habitat; the lake was drained and a new stream extended Mill Creek by about a mile. Michael Hill stands at the restoration site of Mill Creek on Eglin Air Force Base.* ***Facing page, top to bottom:*** *The habitat began to flourish under the careful care of partners from USFWS, FWC and Eglin Air Force Base and Eglin Air Force Base Golf Course; USFWS biologists check for Okaloosa darters in the newly restored portion of Mill Creek; The entire range of the Okaloosa darter is less than 250 stream miles. Its populations are now increasing from its lowest decline, estimated to be as few as 1,500 fish.*

"During the course of regular military maneuvers on the base and the drainage problems associated with miles and miles of unpaved roads, sediment was deposited into the habitat," said Chris Metcalf, a biologist with the U.S. Fish and Wildlife Service in Panama City. "It took restoring the hydrology, decommissioning some roads, removing some culverts and building bigger culverts."

What Metcalf describes next makes the effort even rarer. Eglin Air Force Base joined with the USFWS to provide drainage improvements, using funds from the U.S. Department of Defense.

"You wouldn't think DOD would be involved with endangered species," Metcalf said. "But the quick action of the Jackson Guard at the base began to abate some of the threats to the species."

The six streams contained blockages, suffered from habitat destruction and pollution, in addition to the sediments – all creating hardships for such a small fish. The recovery plan outlined eight remedial tasks that would save the habitat and in turn save the Okaloosa darter.

"Like most darters, the Okaloosa darter is a bottom dwelling species and it needs vegetation," Metcalf said. "The sediment deposition smothers the habitat and without the habitat, there are no darters."

Over the years, the USFWS, working closely with Eglin and the Three Rivers Resource Conservation and Development Council out of Milton, began completing tasks dealing with the watershed. Metcalf stresses that without the partnerships the project would not have been successful.

"I can't stress partners enough, from the Department of Environmental Protection providing the permits to do the work to the FWC's AHRE's funding for two of the final projects that required removing manmade impediments to the streams," Metcalf said.

Hill worked closely with the USFWS and Eglin Air Force Base on Mill Creek, one of the streams that has a portion of it running right through Eglin's golf course.

"It's a small innocuous stream with a known darter habitat in the upper regions," Hill said. "The stream was dammed to create a water hazard on the course, and the lake that was created prevented the darters from extending their range."

With the cooperation of the base and golf course managers, the lake was drained, making a new stream that extended Mill Creek by approximately a mile.

"Limited habitat equals extinction without conservation measures," Hill said. "And the Okaloosa darter already had an extremely limited habitat without taking away more."

Within weeks after opening up the creek, Okaloosa darters were observed by USFWS biologists in the restored area.

Little Rocky Creek runs parallel to Mill Creek in a pine forest and was the next and final project completed under the Okaloosa Darter Recovery Management Plan.

"It's a beautiful vegetated little creek with a lush cooling canopy and the darter flourishes in that type of habitat," Hill said.

Unfortunately, more manmade impediments made it difficult for the darter to survive. Two 5-foot pipes lay side by side under an old abandoned railroad bed that allowed water to flow under the tracks. Even though the tracks had been removed by 2007 when work began on this project, the pipes remained in place creating an obstacle for the movement of the fish. Water flowed through the pipes, then fell 2 feet, creating a waterfall. Darters downstream were unable to jump the barrier to go upstream and upstream darters couldn't get back upstream if washed down by storms, Hill said. This situation effectively created a barrier between two populations of the fish. It's always much healthier to have different populations mingle for reproductive genetic purposes.

The FWC, a major funder of the Little Rocky Creek project, worked with the USFWS to remove the railroad bed to make a level stream. Today, the two populations of Okaloosa darter function as one and swim back and forth with no impediments. Once again, the work resulted in a return of Okaloosa darters to the restored habitat.

All of the successes drove the USFWS to change the status of the Okaloosa darter from endangered to threatened.

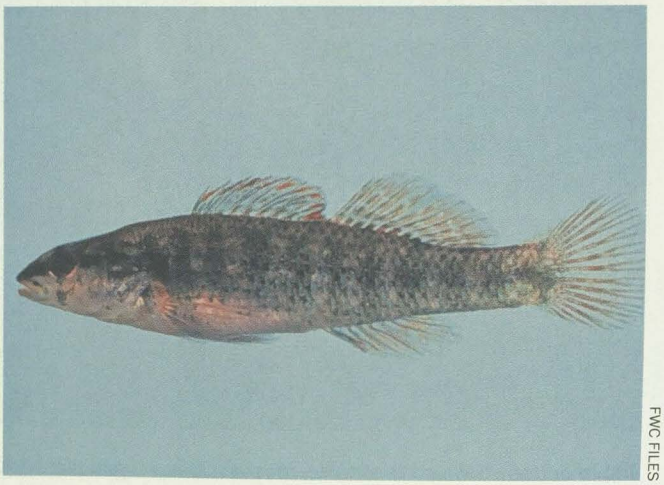
"The Okaloosa darter is one cog in the ecosystem," Metcalf said. "If you lose it, you lose all the other dynamics of the ecosystem. It's very existence lets us know the stream is healthy and the ecosystem is functioning properly."

Both Metcalf and Hill were amazed at how quickly the species returned to the habitat once it was restored. As a result of the plan's successes, the USFWS and the FWC are embarking on another restoration project. It involves removing a dam and restoring hydrologic connections to Anderson Branch also on Eglin Air Force Base.

"The story of the Okaloosa darter dovetails whole ecosystems together," Hill said. "We were able to save the habitat and also improve the habitat. Having it all come together like this is so rare – as rare as the species itself." FW

MICHAEL HILL, FWC

MICHAEL HILL, FWC



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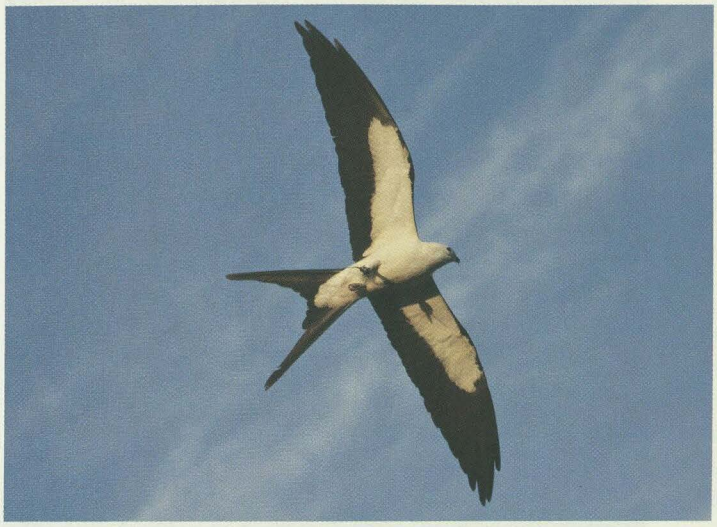
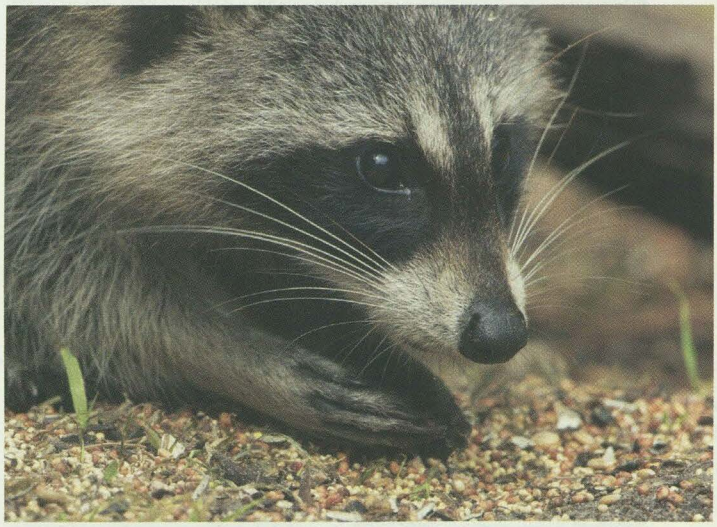
Wildlife **Watch**



JOHNNY VILLARONGA



JOHNNY VILLARONGA

THOMAS J. DUNKERTON

Top to bottom: *Swallow-tailed kite, raccoon, blue-winged teal*

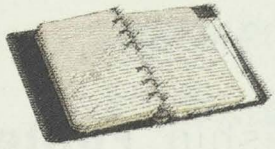
July

- Swallow-tailed and Mississippi kites, purple martins and tree swallows gather to migrate south for the winter
- Bear breeding season begins
- Scrub morning glory and butterfly weed bloom
- Buck deer in velvet may occasionally be spotted
- Sea oats flower on Atlantic beaches
- Second litters of gray squirrels are born
- Young crocodiles hatch in South Florida
- Baby raccoons, foxes, armadillos and bobcats leave their mothers
- Eastern narrowmouth toads "waaa" like a baying sheep after heavy rains
- Leatherback, loggerhead and green sea turtles continue to crawl ashore to lay eggs
- Magnificent frigatebirds fly overhead in South Florida

August

- Short-tailed shrews begin the year's second round of breeding
- Gopher tortoises hatch
- Shorebirds and blue-winged teal arrive to winter on Florida wetlands and lakes
- Indigo snakes and other snake eggs hatch
- Yellow warbler migration begins
- Alligators hatch from now through mid-September
- Deer breed in southern Florida
- Coral along the coast spawn during the full moon
- Bass forage in shallow waters in late evening, early morning and at night
- Loggerhead and green sea turtles continue to nest
- Leatherback turtles depart for their oceanic foraging grounds
- Wild hog breeding season begins

Event dates and locations subject to change. Contact sponsors for up-to-date information. Visit MyFWC.com for fishing and hunting seasons, dates and deadlines.



Calendar

August

Aug. 1: Congo Express Bird Expo. Honeywell Minnreg Building; Largo; 727-517-5337; www.exoticbirdexpos.info.

Aug. 3-5: Kids Fishing Clinic. West Palm Beach; 850-488-6058; MyFWC.com.

Aug. 6: Compost Happens, Water-Wise and Rain Barrel Workshops. Hillsborough County Extension Service; Seffner; 813-744-5519; www.tampagov.net.

Aug. 6-8: Key West Lobsterfest. Key West; www.keywestlobsterfest.com.

Aug. 7-8: Scallop Festival. Port St. Joe; 850-227-1223; www.forgottencoastline.com.

Aug. 7-8: Kingfish/Grouper Shootout Tournament. C-Quarters Marina; Carabelle; 850-697-8400; www.c-quartersmarina.com.

Aug. 7-8: Repticon. Pensacola Interstate Fairgrounds; Pensacola; 863-268-4273; www.repticon.com.

Aug. 8: Bird Expo. Central Florida Fairgrounds; Orlando; 407-855-3367; www.exoticbirdexpos.info.

Aug. 13: Reptile and Amphibian Walk. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 14: Introductory Archery Workshop. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 14-15: Celebrating America's Great Outdoors. St. Marks National Wildlife Refuge; St. Marks; 850-925-6121; www.fws.gov/saintmarks.

Aug. 18: Interpretive Training. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 20-21: Catfish Tournament and Catfish Festival. Wewahitchka; 850-639-2605; www.emeraldbreezeatcape-sanblasflorida.com.

Aug. 21: STA 5 Bird Watching Tour. Clewiston; 863-674-0695; www.floridabirdingtrail.com.

Aug. 21: Pioneer Day Demonstrator Training. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 22-23: National Scholastic Surfing Association Surf Contest. Sebastian Inlet State Park; Melbourne Beach; 321-984-4852; www.floridastateparks.org.

Aug. 25: Interpretive Training. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 27: Big Pine Night Walk. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Aug. 27-28: Islamorada Swordfish Tournament. Islamorada; 305-282-1006; www.miamiswordfishtournament.com.

Aug. 28: Mexico Beach Artificial Reef Association King Mackerel Tournament. Mexico Beach; 888-723-2546; www.forgottencoastline.com.

Aug. 28-29: Big Bend Bird Club Exotic Bird Fair and Festival. North Florida Fairgrounds; Tallahassee; 850-841-1773; www.exoticbirdexpos.info.

Aug. 28-Sept. 4: Wild and Scenic Film Festival. Apalachicola; 850 653-8936; www.forgottencoastline.com.

Aug. 29: Glen Oaks Park Water & Uplands Cleanup. Clearwater; 727-562-4897; www.myclearwater.com.

September

Sept. 3-4: Florida Wild Mammal Association Huge Yard Sale. Crawfordville; 850-363-2351; www.forgottencoastline.com.

Sept. 5: Exotic Bird Fair. National Guard Armory; Jacksonville; 904-384-5117; www.exoticbirdexpos.info.

Sept. 10: Incredible Edibles. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Sept. 10-12: Tampa Boat Show. Tampa Convention Center; Tampa; 954-441-3220; www.tampaboatshow.com.

Sept. 11-12: Florida Sportsman Fishing & Boat Show. South Florida Fairgrounds; West Palm Beach; 561-793-0333; www.floridasportsman.com.

Sept. 12: Congo Express Bird Expo. Sahib Shriners; Sarasota; 727-517-5337; www.exoticbirdexpos.info.

Sept. 12: Moccasin Lake Nature Park Project. Clearwater; 727-562-4803; www.myclearwater.com.

Sept. 13-19: Conchtoberfest. Hawks Cay Resort; Marathon; 305-743-5417; www.floridakeysmarathon.com.

Sept. 17-19: Nautical Flea Market & Seafood Festival. Stuart; 954-205-7813; www.flnauticalfleamarket.com.

Sept. 17-19: Take Stock in Children Backcountry Challenge. Key Largo; 305-451-2467; www.fla-keys.com.

Sept. 18: Kid's Fishing Clinic. Jensen Beach; 850-488-6058; MyFWC.com.

Sept. 18: STA 5 Bird Watching Tour. Clewiston; 863-674-0695; www.floridabirdingtrail.com.

Sept. 18: Youth Fishing Derby. Oceanway Park; Jacksonville; 386-758-0525; wwwMyFWC.com.

Sept. 21: Backpacking and Water Camping. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Sept 22-26: Florida Keys Birding and Wildlife Festival. Curry Hammock State Park; Marathon; 305-872-0774; www.floridabirdingtrail.com.

Sept. 23-26: Miami Swordfish Tournament. Miami Beach Marina; Miami; 305-282-1006; www.miamiswordfishtournament.com.

Sept. 24: National Estuaries Day. Apalachicola; 850-653-8063; www.forgottencoastline.com.

Sept. 24-25: Florida Catfish Classic. (Flathead & Channel Cats) with Kids & Ladies Divisions; Gaskin Park Landing, Wewahitchka; Don Minchew at 850-814-3180 or 850-639-2605; www.floridacatfishclassic.com.

Sept. 24-26: Seafood Festival. Seville Square; Pensacola; 850-433-6512; www.fiestaoffiveflags.org.

Sept. 25: Butterfly Workshop. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Sept. 25: National Public Lands Day. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Sept. 25-26: Butterfly Days. Fairchild Tropical Botanical Gardens; Miami; 305-666-5727; www.floridabirdingtrail.com.

Sept. 25-26: C-Quarter's Marina Kingfish/Grouper Shootout. Carrabelle; 850-697-8400; www.c-quartersmarina.com.

Sept. 25-26: Florida Sportsman Fishing & Boat Show. Florida State Fairgrounds; Tampa; 561-793-0333; www.floridasportsman.com.

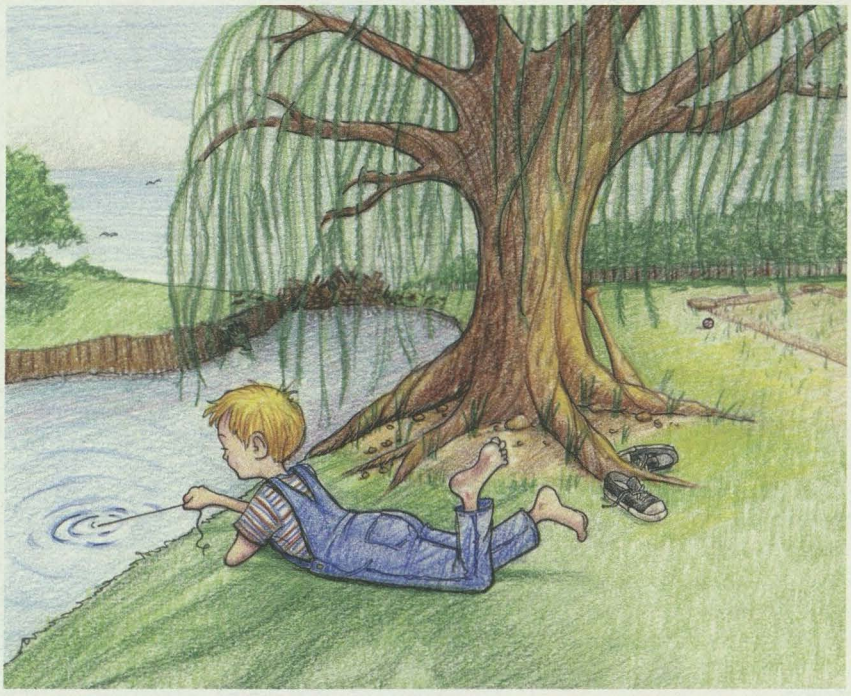
Sept. 26: Companion Bird Club of Charlotte County Bird Expo. Charlotte County Fairgrounds; Port Charlotte; 841-475-3440; www.exoticbirdexpos.info.

Sept. 28: Big Pine Fall Wildflower and Butterfly Walk. Chinsegut Nature Center; Brooksville; 352-754-6722; MyFWC.com/Chinsegut.

Fishin' **Follies**

A magical place

By Andy Sabol ~ Illustration by John Papesca



Let me take you back to a magical place of my boyhood. First, you have to imagine that you are 10 to 13 years old in order for the magic to really happen.

OK. Here we go... on our adventure down into Tevebaugh Hollow.

There were a lot of ways to get to the hollow, but the best was to cross Schiller Street and cut through the woods. When you came out of the woods, you were directly behind home plate on the ball field. It really belonged to the kids. Adults were busy trying to support their families during the depression.

About twice a month during the summer, everyone would bring their hand-push, rotary mowers and we would cut the outfield grass, such as it was. We would rake the infield and put down new burlap sacks for bases. Home plate was made from six house bricks set down in the ground. We also used this area as our football field in the fall.

The main feature of Tevebaugh Hollow was the creek. It was only 6 to 10 feet wide and less than a foot deep in most places. But what fun we had there.

Each spring we had to rebuild the dam. The dam stretched across a narrow place in the creek and created a swimming hole about 5 feet deep and about as large as a tennis court. This is where we spent most of our summer days. Baseball in the mornings and the swimming hole all afternoon.

Just about 50 or so yards upstream from the dam was a sharp bend in the creek with a huge willow tree on the bank, overhanging the water. There, the creek was about 6 feet deep and held a good population of horned chubs (6 to 8 inch minnows with little bumps on their heads) and a few black bullhead catfish. We would lounge on the bank, leaning over the willow tree roots, and fish with hand lines for hours at a time.

Our tackle was just a short piece, about 8 feet long, of #40 black sewing thread with a small Carlisle-style hook. While peeled, crawdad tails worked fine, but the absolute best bait was "water worms." I still don't know the real name for the 2-inch-long gray worms we found under rocks in the creek, but boy, did the fish love those things. The worms were filled with a yellow fluid and goo, their skins were really tough and the little fish had trouble stealing your bait.

There were fishing holes all along the creek, about every 100 feet or so, and it seemed you could always catch fish at one when the fish were not biting at another.

At two different places in the hollow there were springs flowing out of the hillside – fresh, clean, cold drinking water. It was near these springs that we would pitch our used, WWI pup tents and spend a lot of summer nights and winter weekends camping in the hollow. Bacon and eggs for breakfast, steak on a stick for supper and coffee and hot gingerbread at midnight around the campfire. Oh what great times!

Just thinking about Tevebaugh Hollow makes me feel young again, just for a moment, even after 70 years. FW

Southwest Florida Water Management District partners with National Wild Turkey Federation on Jakes Youth hunting event

The Southwest Florida Water Management District, Peace River/Manasota Water Supply Authority and the FWC partnered with the National Wild Turkey Federation Jakes Youth hunting event held at R.V. Griffin Reserve, March 12-14. The event offered 12 youths, ages 8-17, access to state water management district land. This cooperative effort provided a rich experience for the kids, including hands-on education of the principles of wetlands, wildlife and the need to conserve and share our natural resources.

A cooperative effort provided a rich experience to youth hunters.

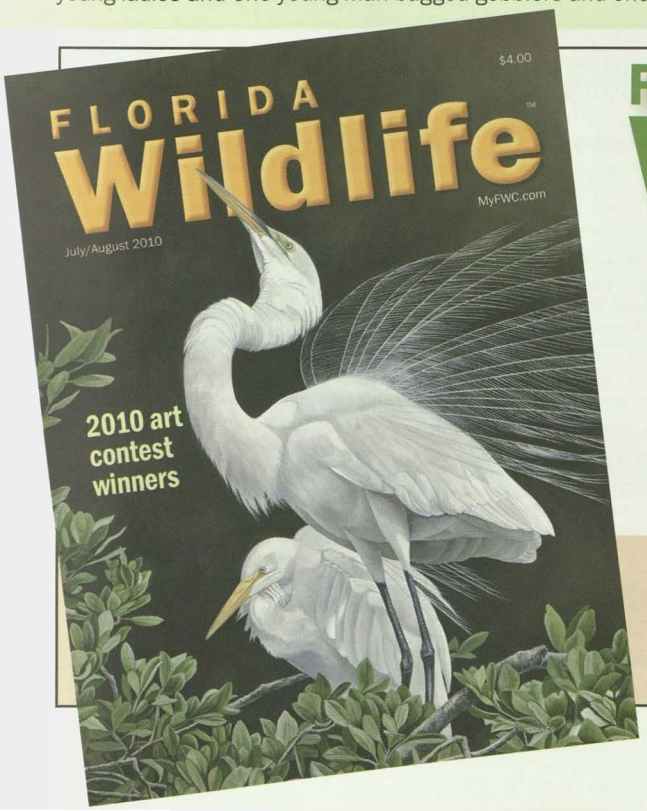
More than 47 individuals participated in the event, which included camping, wetland hydrology principles, wildlife, firearm safety, hunting and current state rules and laws.

Despite 8 inches of rain and strong winds, the kids toughed it out over the weekend. Twelve youths – six boys and six girls – were guided on a spring gobbler turkey hunt. Three young ladies and one young man bagged gobblers and one lady also bagged a large hog.

One young participant, Mary Lawrence, age 9, said, "This was the best time of my life. I watched two young bucks spar and a turkey strut right in front of me."

Kinzie Jones, age 14, said, "After sitting in our blind for about five minutes and watching the gobbler walk around for an hour, I finally pulled the trigger and watched the 10-inch bearded gobbler fall, and my guide and dad jumped out of the blind. I also killed a hog that same day. I would really like to thank the National Wild Turkey Federation and Charlotte County Limb Hanger Chapter for this experience, and I would love it if we could do this again."

It is NWTF's hope that exposure to the natural resources will create an appreciation of and a personal bond with the resource. Furthermore, these youths will become our next educated voters when it comes to natural resource issues and will remember their experiences on SWFWMD property for a long time to come.



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2010–2011 Florida Hunting Season Dates and Bag Limits

Seasons and dates do not apply to wildlife management areas.

SPECIES	ZONE/ STATEWIDE	SEASON DATES				BAG LIMITS
		Archery Season (A)	Crossbow Season (C)	Muzzleloading (M) Gun Season	General Gun Season (D)	
DEER (1) **Must have new $5 Deer Permit as well as hunting license to hunt deer.**	Zone A	**July 31 – Aug. 29** Antlered or antlerless deer by bow only (2)	**Aug. 30 – Sept. 3** Antlered deer only by crossbow or bow	**Sept. 4–17** Antlered deer only by muzzleloader, crossbow or bow	**Sept. 18 – Oct. 17** and **Nov. 20 – Jan. 2** Antlered deer entire season; **antlerless deer may be taken Nov. 20–26** by all legal centerfire rifles and pistols, shotguns, muzzleloaders, crossbows and bows (3)	During **Archery Season**, daily bag limit is: 2 antlered deer *or* 1 antlered deer and 1 antlerless deer *or* 2 antlerless deer. During **Antlerless Deer Season** (Nov. 20–26 in zones A and C; Dec. 26 – Jan. 1 in zones B and D), daily bag limit is: 2 antlered deer *or* 1 antlered deer and 1 antlerless deer. During **all other seasons**, daily bag limit is: 2 antlered deer, and antlerless deer may be taken by antlerless deer permit only.
	Zone B	**Oct. 16 – Nov. 14** Antlered or antlerless deer by bow only	**Nov. 15–19** Antlered deer only by crossbow or bow	**Nov. 20 – Dec. 3** Antlered deer only by muzzleloader, crossbow or bow	**Dec. 4 – Feb. 20** Antlered deer entire season; **antlerless deer may be taken Dec. 26 – Jan. 1** by all legal centerfire rifles and pistols, shotguns, muzzleloaders, crossbows and bows	
	Zone C	**Sept. 18 – Oct. 17** Antlered or antlerless deer by bow only	**Oct. 18–22** Antlered deer only by crossbow or bow	**Oct. 23 – Nov. 5** Antlered deer only by muzzleloader, crossbow or bow	**Nov. 6 – Jan. 23** Antlered deer entire season; **antlerless deer may be taken Nov. 20–26** by all legal centerfire rifles and pistols, shotguns, muzzleloaders, crossbows and bows	
	Zone D	**Oct. 23 – Nov. 24** Antlered or antlerless deer by bow only	**Nov. 29 – Dec. 3** Antlered deer only by crossbow or bow	**Dec. 4–10** and **Feb. 21–27** Antlered deer only by muzzleloader, crossbow or bow	**Nov. 25–28** and **Dec. 11 – Feb. 20** Antlered deer entire season; **antlerless deer may be taken Dec. 26 – Jan. 1** by all legal centerfire rifles and pistols, shotguns, muzzleloaders, crossbows and bows	

SPECIES	ZONE/ STATEWIDE	SEASON DATES				BAG LIMITS
		Archery Season (A)	Crossbow Season (C)	Muzzleloading (M) Gun Season	Fall Turkey Season	
FALL TURKEY (gobblers and bearded only) (T)	Zone A	**July 31 – Aug. 29** by bow only (2)	**Aug. 30 – Sept. 3** by crossbow or bow only	**Sept. 4–17** by muzzleloader, crossbow or bow only	**Oct. 4–17** and **Nov. 20 – Jan. 2** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	1 per day 2 for all fall seasons combined
	Zone B	**Oct. 16 – Nov. 14** by bow only	**Nov. 15–19** by crossbow or bow only	**Nov. 20 – Dec. 3** by muzzleloader, crossbow or bow only	**Dec. 4 – Jan. 30** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	
	Zone C	**Sept. 18 – Oct. 17** by bow only	**Oct. 18–22** by crossbow or bow only	**Oct. 23 – Nov. 5** by muzzleloader, crossbow or bow only	**Nov. 6 – Jan. 2** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	
	Zone D (4)	**Oct. 23 – Nov. 24** by bow only	**Nov. 29 – Dec. 3** by crossbow or bow only	**Dec. 4–10** by muzzleloader, crossbow or bow only	**Nov. 25–28** and **Dec. 11 – Jan. 16** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	

SPECIES	ZONE/ STATEWIDE	SEASON DATES				BAG LIMITS
		Archery Season (A)	Crossbow Season (C)	Muzzleloading (M) Gun Season	Quail and Gray Squirrel Season	
QUAIL (D) **GRAY SQUIRREL (D)**	Zone A	**July 31 – Aug. 29** by bow only (2)	**Aug. 30 – Sept. 3** by crossbow or bow only	**Sept. 4–17** by muzzleloader, crossbow or bow only	**Nov. 13 – March 6** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	**Quail**: 12 per day **Squirrel**: 12 per day
	Zone B	**Oct. 16 – Nov. 12** by bow only			**Nov. 13 – March 6** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	
	Zone C	**Sept. 18 – Oct. 17** by bow only	**Oct. 18–22** by crossbow or bow only	**Oct. 23 – Nov. 5** by muzzleloader, crossbow or bow only	**Nov. 13 – March 6** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	
	Zone D	**Oct. 23 – Nov. 12** by bow only			**Nov. 13 – March 6** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	

SPECIES	ZONE/ STATEWIDE	SEASON DATES		BAG LIMITS
		Youth Spring Turkey Hunt (5)	Spring Turkey Season (T)	
SPRING TURKEY (gobblers and bearded only)	Zone A	**Feb. 26–27** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	**March 5 – April 10** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	1 per day 2 for spring season
	Zones B, C, D except Holmes County	**March 12–13** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	**March 19 – April 24** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	
	Holmes County	**March 12–13** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	**March 19 – April 3** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	1 per season

SPECIES	ZONE/ STATEWIDE	SEASON DATES		BAG LIMITS
RABBIT	Statewide	**Year round** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols Ⓓ		12 per day
WILD HOG	Statewide	**Year round** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols. Wild hogs also may be trapped. Hunting license not required on private property. Ⓓ		No limit
BOBCAT ⒹⒻ **OTTER** Ⓕ	Statewide	**Dec. 1 – March 1** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols	Those with a hunting license may possess no more than 1 bobcat and 1 otter pelt between April 1 and Nov. 30, 2011, unless pelt has FWC tag. Also, otter and bobcat pelts may not be taken out of Florida unless tagged. Bobcats may be chased with dogs year round.	**Bobcat**: No limit **Otter**: No limit
RACCOON **OPOSSUM** **COYOTE** **BEAVER** **SKUNK** **NUTRIA**	Statewide	**Year round** by all legal rifles, shotguns, muzzleloaders, crossbows, bows and pistols ⒹⒻ	Hunting raccoons or opossums at night is allowed, but only .22-caliber rimfire firearms (other than .22-magnums) or single-shot .410-gauge shotguns (using shot not larger than size 6) may be used. Firearms may not be loaded until immediately prior to shooting raccoons or opossums. Hunting raccoons or opossums by displaying or using lights from moving vehicles, vessels or animals is prohibited. It is illegal to transport wild-trapped live raccoons within, into or from the state, except by FWC permit or authorization.	No limit on any species
DEER–DOG TRAINING	Zone A	**Aug. 14 – Sept. 2**	Those with a hunting license may train or toughen free-running deer dogs on private property during daylight hours, after first registering (at no cost) the tract of land with the FWC. While training, all deer dogs must have their FWC-issued registration number, along with the owner's name and address on their collars. Copies of the registration must be in the hunter's possession when training deer dogs.	
	Zone B, D	**Oct. 30 – Nov. 18**		
	Zone C	**Oct. 2–21**		

Ⓐ Must have $5 Archery Season Permit as well as hunting license. It is prohibited to use bows equipped with sights or aiming devices with electronic computational capabilities or light (laser) projection during this time.

Ⓒ Must have $5 Crossbow Season Permit as well as hunting license.

Ⓜ Must have $5 Muzzleloading Gun Season Permit as well as hunting license. The only muzzleloaders that can be used during this time are those that take black powder or a non-nitro-cellulose substitute and are fired by wheel lock, flintlock, percussion cap or centerfire primer (including 209 primers). Muzzleloaders using smokeless powder, those that can be loaded from the breech or those with self-contained cartridge ammunition capabilities are not legal during this period.

Ⓓ Free-running dogs may be used for hunting but must wear collars listing the owner's name and address. When using dogs to hunt deer on private property, hunters must first register with the FWC (at no cost) the tract of land they have permission to hunt, and all deer dogs must have their FWC-issued registration number on their collars. Copies of the registration also must be in hunter's possession when using dogs to pursue deer.

Ⓣ Must have Turkey Permit (**$10** for residents, **$125** for nonresidents) as well as hunting license to hunt turkeys.

Ⓕ Furbearers may be taken with live traps and snares, but must have $26 Trapping License. Live traps and snares must be checked at least every 24 hours. Using or possessing steel or leg-hold traps where wildlife might be found is prohibited, unless authorized by permit from the FWC executive director. Trapping License also is required to sell hide and meat of furbearing mammals year-round, but otter and bobcat pelts may be sold to licensed fur dealers or agents from Dec. 1, 2010 through March 31, 2011 only. It is illegal to transport wild-trapped live raccoons within, into or from the state, except by FWC permit or authorization.

❶ **Antlered deer**: Deer having at least one antler 5 or more inches in length visible above the hairline; **Antlerless deer**: Deer (except spotted fawns) that do not have antlers or have antlers less than 5 inches in length. It is illegal to take spotted fawns.

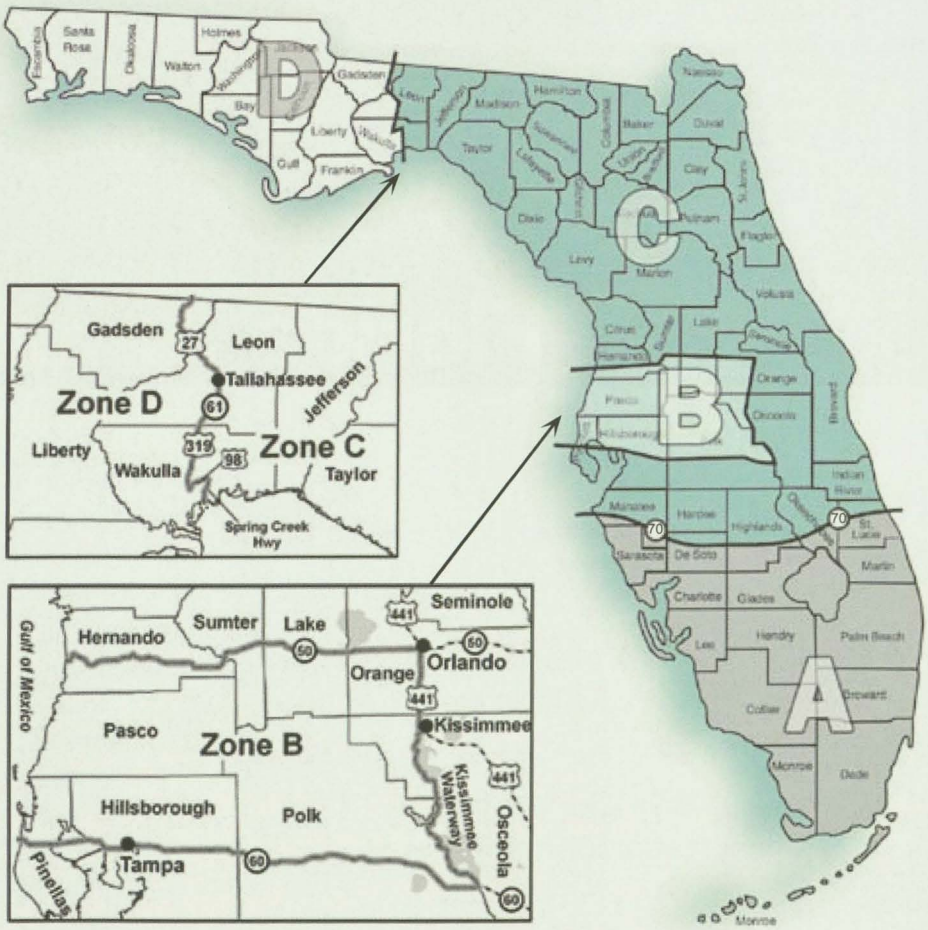
❷ In Miami-Dade County, it is prohibited to possess a bow on an airboat during this time.

❸ No antlerless deer may be taken on that portion of the eastern Everglades south of Tamiami Trail (U.S. 41) and east of Everglades National Park; or in Collier County south of I-75 during this period.

❹ In Holmes County, there is no fall harvest of turkeys allowed.

❺ Only youths under 16 years old are allowed to harvest a turkey while supervised by an adult, 18 years or older. However, adult supervisors with a hunting license and turkey permit are allowed to "call in" the turkey and otherwise participate in the hunt, but they are not permitted to harvest one. Any turkey harvested during the Youth Spring Turkey Hunt counts toward the youth hunter's spring season limit of 2.

Hunting Zones



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Florida ... naturally.™

Photo: Gus Holzer

FWC law enforcement is not a typical 9-to-5 job. Officers work day and night. Their 'patrol' vehicle may be an airboat or swamp buggy, and their 'beat' may be a swamp, forest or as far as 200 miles offshore.

Answer the call of the wild. If you want to help protect Florida's natural resources and people – become an FWC law enforcement officer.

Call (866) FWC-HIRE (392-4473).

Florida Fish and Wildlife Conservation Commission

Division of Law Enforcement

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